



MagTek Universal SDK

For MMS Devices
Demo Manual (Windows)

June 2025

Manual Part Number:
D998200395-507

REGISTERED TO ISO 9001:2015

Copyright © 2006 – 2025 MagTek, Inc.
Printed in the United States of America

Information in this publication is subject to change without notice and may contain technical inaccuracies or graphical discrepancies. Changes or improvements made to this product will be updated in the next publication release. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of MagTek, Inc.

MagTek® is a registered trademark of MagTek, Inc.

MagneSafe® is a registered trademark of MagTek, Inc.

iDynamo™, and uDynamo are trademarks of MagTek, Inc.

eDynamo™, Dynamag, and DynaMAX are trademarks of MagTek, Inc.

DynaFlex™, DynaFlex Pro™, DynaProx™, DynaFlex II PED™, and DynaFlex II Go™ are trademarks of MagTek, Inc.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by MagTek is under license.

Google Play™ store, Google Wallet™ payment service, and Android™ platform are trademarks of Google LLC.

Apple Pay®, iPhone®, iPod®, iPod touch®, Mac®, and OS X® are registered trademarks of Apple Inc., registered in the U.S. and other countries. iPad™ is a trademark of Apple. Inc. App Stores™ is a service mark of Apple Inc., registered in the U.S. and other countries. IOS is a trademark or registered trademark of Cisco in the U.S. and other countries and is used by Apple Inc. under license. MAC and macOS are trademarks of Apple Inc., registered in the U.S. and other countries.

Microsoft®, Windows® and .NET® are registered trademarks of Microsoft Corporation.

EMV® is a registered trademark in the U.S. and other countries and an unregistered trademark elsewhere. The EMV trademark is owned by EMVCo, LLC. The Contactless Indicator mark, consisting of four graduating arcs, is a trademark owned by and used with permission of EMVCo, LLC.

All other system names and product names are the property of their respective owners.

Table 0.1 – Revisions

Rev Number	Date	Notes
10	October 1, 2020	Initial release
11	October 22, 2020	Added features Show Image and Send File to the Configuration tab.
12	January 25, 2021	Added features to support signature capture and host driven fallback.
20	June 17, 2021	Updated GUI to support manual card entry and event notifications.
30	January 25, 2022	Added features to support Bitmap and BarCode. Added support for DynaProx.
40	March 2, 2022	Added features to support requesting a PIN with a card.

50	March 14, 2023	Added Web Socket connection instruction at section 2. Added BMP image format at section 4. Added Apple VAS and Barcode transactions at section 3.
500	September 26, 2023	Added NFC tag operations as sections 3.5 and 3.6. Added Update Firmware as section 4.13.
501	November 13, 2023	Added support for tip and tax for transactions to section 3.2. Added support for NFC Mifare Classic 1K and 4K card reading and writing operations as section 3.7
502	January 10, 2024	Added support for DynaFlex II Go BLE at section 2.4. Added support for Mifare DESFire Light Tag reading at section 3.5.
503	February 15, 2024	Added support for Google VAS as section 1.2 and section 3.4. Added Parse NDEF to section 3.9.
504	July 1, 2024	Added support for Flexible UI pages as sections 5, 5.1, 5.2, 5.3, 5.4, and 5.5.
505	August 22, 2024	Added support for loading a CSV file for Custom Device UI page. (Section 5.1).
506	May 18, 2025	Added support for MQTT (Section 2.5).
507	June 23, 2025	Added support for MQTT mTLS (Section 2.6).

SOFTWARE LICENSE AGREEMENT

IMPORTANT: YOU SHOULD CAREFULLY READ ALL THE TERMS, CONDITIONS AND RESTRICTIONS OF THIS LICENSE AGREEMENT BEFORE INSTALLING THE SOFTWARE PACKAGE. YOUR INSTALLATION OF THE SOFTWARE PACKAGE PRESUMES YOUR ACCEPTANCE OF THE TERMS, CONDITIONS, AND RESTRICTIONS CONTAINED IN THIS AGREEMENT. IF YOU DO NOT AGREE WITH THESE TERMS, CONDITIONS, AND RESTRICTIONS, PROMPTLY RETURN THE SOFTWARE PACKAGE AND ASSOCIATED DOCUMENTATION TO THE ADDRESS ON THE FRONT PAGE OF THIS DOCUMENT, ATTENTION: CUSTOMER SUPPORT.

TERMS, CONDITIONS, AND RESTRICTIONS

MagTek, Incorporated (the "Licensor") owns and has the right to distribute the described software and documentation, collectively referred to as the "Software."

LICENSE: Licensor grants you (the "Licensee") the right to use the Software in conjunction with MagTek products. LICENSEE MAY NOT COPY, MODIFY, OR TRANSFER THE SOFTWARE IN WHOLE OR IN PART EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT. Licensee may not decompile, disassemble, or in any other manner attempt to reverse engineer the Software. Licensee shall not tamper with, bypass, or alter any security features of the software or attempt to do so.

TRANSFER: Licensee may not transfer the Software or license to the Software to another party without the prior written authorization of the Licensor. If Licensee transfers the Software without authorization, all rights granted under this Agreement are automatically terminated.

COPYRIGHT: The Software is copyrighted. Licensee may not copy the Software except for archival purposes or to load for execution purposes. All other copies of the Software are in violation of this Agreement.

TERM: This Agreement is in effect as long as Licensee continues the use of the Software. The Licensor also reserves the right to terminate this Agreement if Licensee fails to comply with any of the terms, conditions, or restrictions contained herein. Should Licensor terminate this Agreement due to Licensee's failure to comply, Licensee agrees to return the Software to Licensor. Receipt of returned Software by the Licensor shall mark the termination.

LIMITED WARRANTY: Licensor warrants to the Licensee that the disk(s) or other media on which the Software is recorded are free from defects in material or workmanship under normal use.

THE SOFTWARE IS PROVIDED AS IS. LICENSOR MAKES NO OTHER WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Because of the diversity of conditions and PC hardware under which the Software may be used, Licensor does not warrant that the Software will meet Licensee specifications or that the operation of the Software will be uninterrupted or free of errors.

IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE, OR INABILITY TO USE, THE SOFTWARE. Licensee's sole remedy in the event of a defect in material or workmanship is expressly limited to replacement of the Software disk(s) if applicable.

GOVERNING LAW: If any provision of this Agreement is found to be unlawful, void, or unenforceable, that provision shall be removed from consideration under this Agreement and will not affect the enforceability of any of the remaining provisions. This Agreement shall be governed by the laws of the State of California and shall inure to the benefit of MagTek, Incorporated, its successors or assigns.

ACKNOWLEDGMENT: LICENSEE ACKNOWLEDGES THAT HE HAS READ THIS AGREEMENT, UNDERSTANDS ALL OF ITS TERMS, CONDITIONS, AND RESTRICTIONS, AND AGREES TO BE BOUND BY THEM. LICENSEE ALSO AGREES THAT THIS AGREEMENT SUPERSEDES ANY AND ALL VERBAL AND WRITTEN COMMUNICATIONS BETWEEN LICENSOR AND LICENSEE OR THEIR ASSIGNS RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT.

QUESTIONS REGARDING THIS AGREEMENT SHOULD BE ADDRESSED IN WRITING TO MAGTEK, INCORPORATED, ATTENTION: CUSTOMER SUPPORT, AT THE ADDRESS LISTED IN THIS DOCUMENT, OR E-MAILED TO SUPPORT@MAGTEK.COM.

DEMO SOFTWARE / SAMPLE CODE: Unless otherwise stated, all demo software and sample code are to be used by Licensee for demonstration purposes only and MAY NOT BE incorporated into any production or live environment. The PIN Pad sample implementation is for software PIN Pad test purposes only and is not PCI compliant. To meet PCI compliance in production or live environments, a third-party PCI compliant component (hardware or software-based) must be used.

0 - Table of Contents

Table of Contents

Table of Contents	6
1 Introduction	8
1.1 System Requirements	8
1.2 Device Requirements	8
2 How to Connect to MTUSDKNET Demo	9
2.1 Connect by USB	9
2.2 Connect by Serial	10
2.3 Connect by Web Socket	11
2.4 Connect by Bluetooth LE	12
2.5 Connect by MQTT	15
2.6 Connect by MQTT with mTLS	17
3 How to use the MTUSDKNET Demo	19
3.1 Send Command	19
3.2 EMV Transaction	20
3.3 Apple VAS Transaction	23
3.4 Google VAS Transaction	24
3.5 Barcode Transaction	25
3.6 NFC Type 2 / Mifare Classic/ Mifare DESFire Light Tag - Read	26
3.7 NFC Type 2 Tag - Write	27
3.8 Mifare Classic Tag - Write	30
3.9 Parser	32
3.10 Device Info	34
4 How to use Configuration	35
4.1 Send Image	35
4.2 Set Display Image	37
4.3 Show Image	38
4.4 Send File	39
4.5 Get File	41
4.6 Display Message	42
4.7 Get Challenge	43
4.8 Configuration	44
4.9 Scan Barcode	46
4.10 Show Bitmap	47

0 - Table of Contents

4.11	Show Barcode	48
4.12	Request PAN	49
4.13	Update Firmware	50
5	Flexible UI Page.....	51
5.1	UI Configuration File.....	51
5.2	Text Page	54
5.3	Buttons Page	56
5.4	Amount Page	58
5.5	Image Page	61

1 Introduction

This document provides instructions to use the MTUSDKNET Demo. Supported devices are DynaFlex, DynaFlex Pro, DynaProx, DynaFlex II SCRA, DynaFlex II PED, and DynaFlex II Go. It is part of a larger library of documents designed to assist Secure Card Readers implementers, which includes the following documents available from MagTek:

- **D998200380 MAGTEK UNIVERSAL SDK PROGRAMMER'S MANUAL (MICROSOFT .NET)**

1.1 System Requirements

- A Windows 10 host with available USB port
- Microsoft .NET 4.6.1 and above installed on the host
- DynaFlex, DynaFlex II PED, or DynaProx device(s)
- USB-C cable with USB Type-A or USB-C for host connection
- Root Certificate, Sub CA Certificate, and Client private key Certificate as referenced in document **D998200550 DynaFlex II PED Using Wireless LAN Guide**.

1.2 Device Requirements

- For Apple VAS and Google Wallet VAS transactions, see instructions for configuration in the SDK document appendix:
D998200380 MAGTEK UNIVERSAL SDK PROGRAMMER'S MANUAL (MICROSOFT .NET)

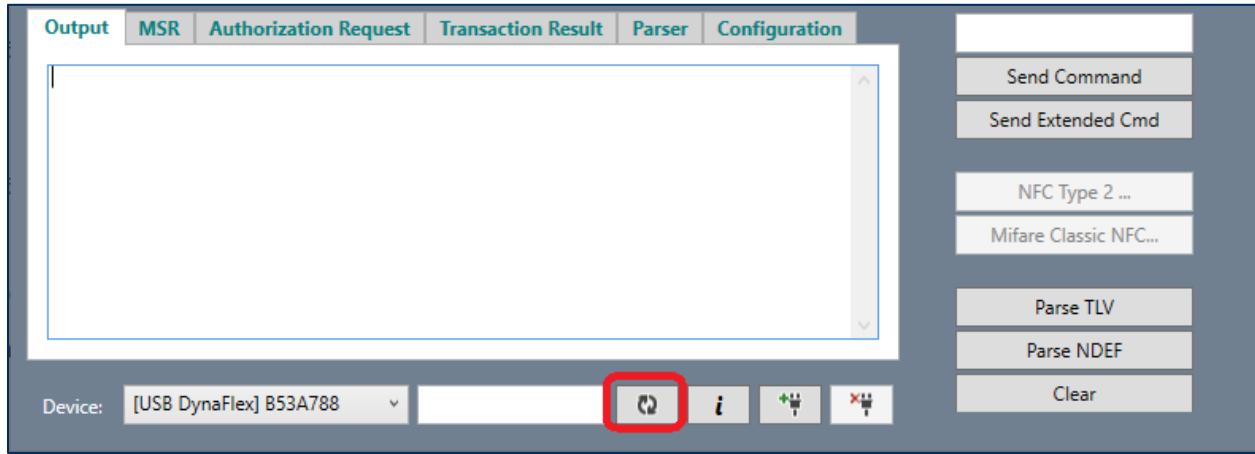
2 - How to Connect to MTUSDKNET Demo

2 How to Connect to MTUSDKNET Demo

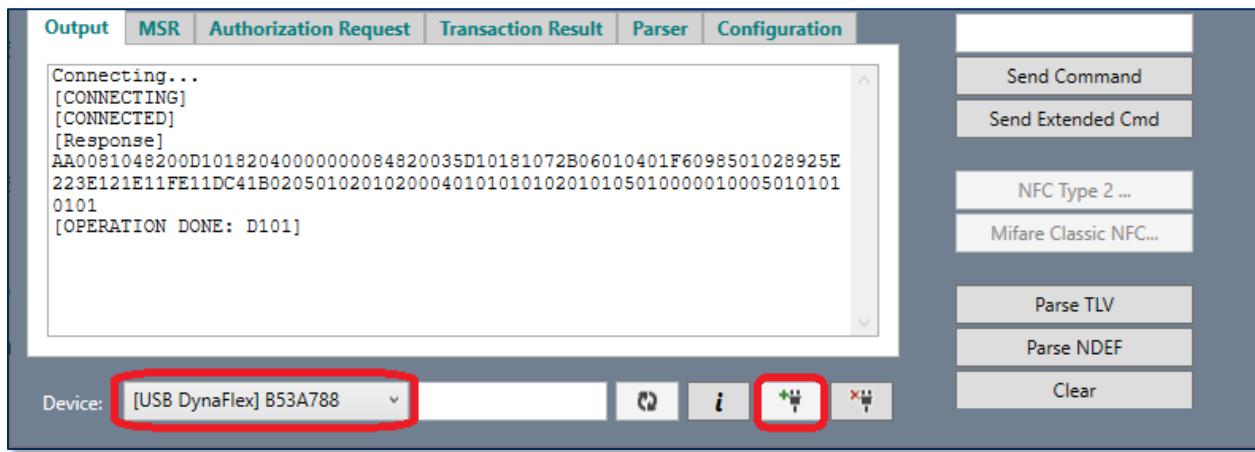
Choose one of the following interface sub sections for instructions on how to connect to the reader.

2.1 Connect by USB

- 1) Connect the device to the USB port of the Windows PC.
- 2) Launch the MTUSDKNET Demo, and press the **Scan** button to display a list of available devices.



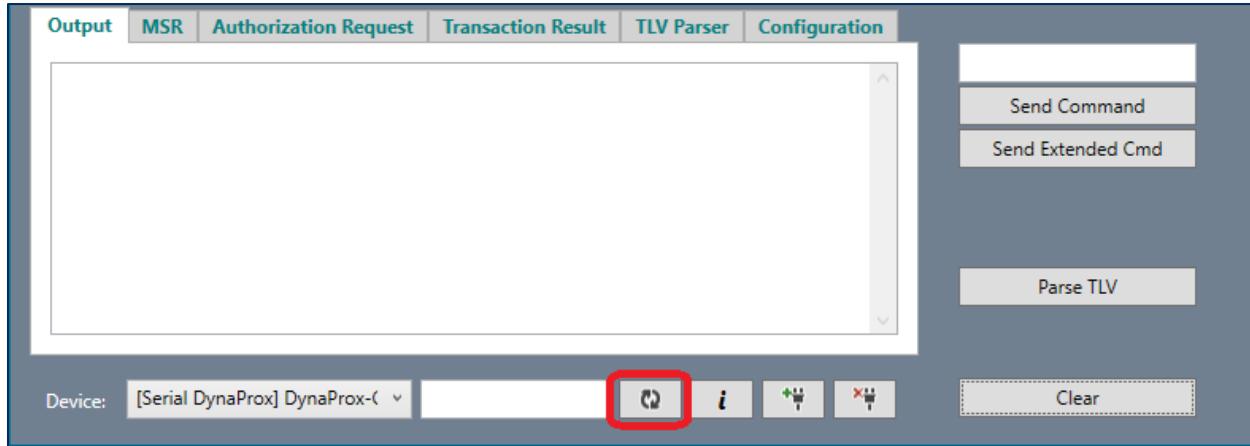
- 3) Select the device from the **Device** list box, and press the **Connect** button to open the device.



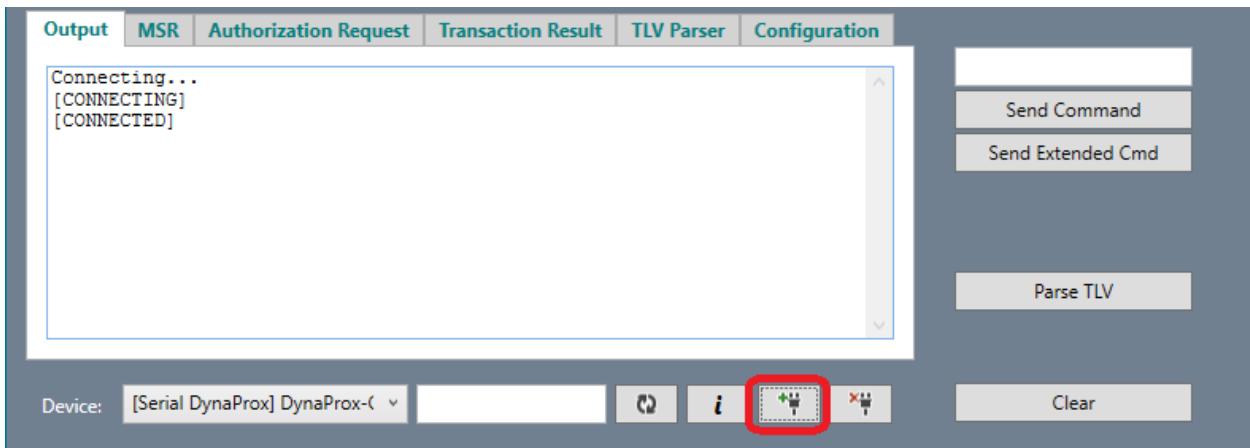
2 - How to Connect to MTUSDKNET Demo

2.2 Connect by Serial

- 1) Connect the device to the Serial port of the Windows PC.
- 2) Launch the MTUSDKNET Demo and press the **Scan** button to display a list of available devices.



- 3) Select the device from the **Device** list box, and press the **Connect** button to open the device.



2 - How to Connect to MTUSDKNET Demo

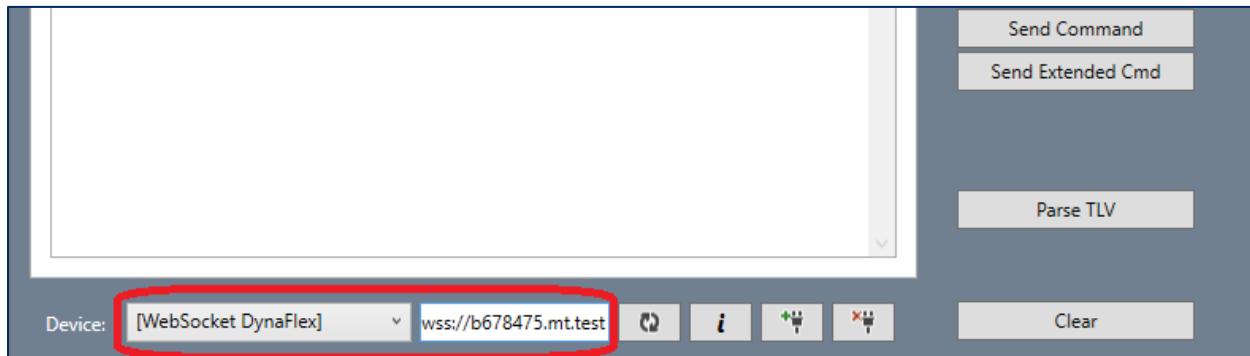
2.3 Connect by Web Socket

Before connecting to WebSocket, please make sure your PC has installed all the root and sub CA certificates, and the client private key certificate associated with your DynaFlex II PED device. Please refer to document **D998200550 DynaFlex II PED Using Wireless LAN Guide** for more detailed instructions. To connect via Web Socket, follow these steps.

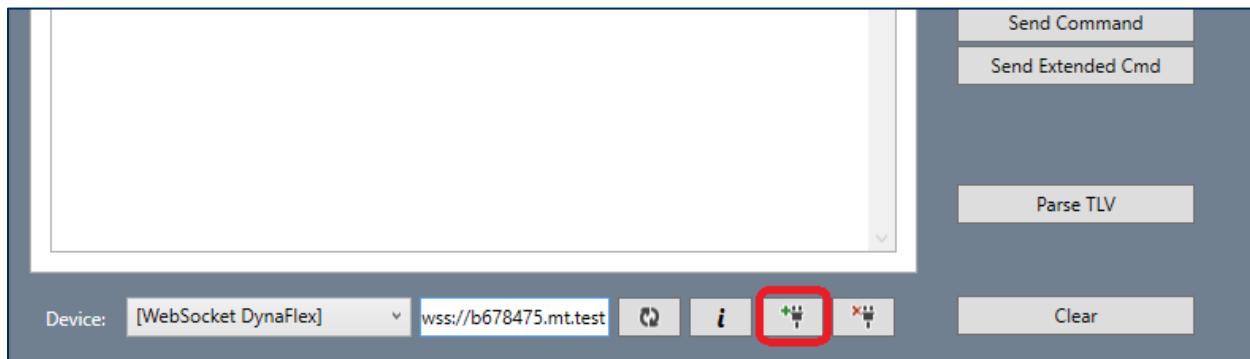
- 1) Select DynaFlex WebSocket in the device list, and then enter the device's address.

If using non TLS connection, enter the address: **ws://xxxxxx**

If using TLS trust connection, place the client.p12 file in the same app folder and enter the address:
wss://xxxxxx



- 2) Press the **Connect** button to connect to the device.

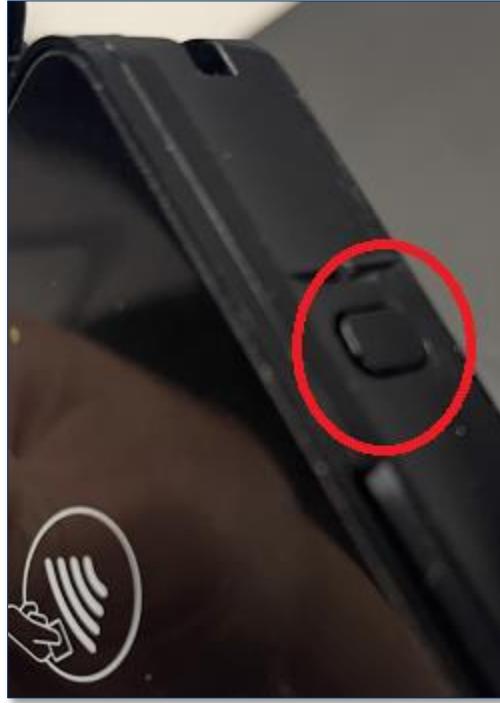


2 - How to Connect to MTUSDKNET Demo

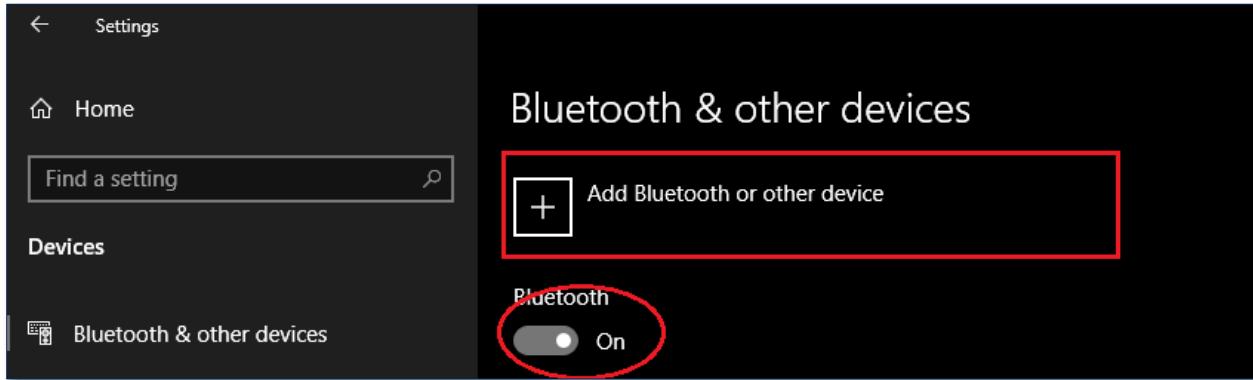
2.4 Connect by Bluetooth LE

The following instructions are for pairing the DynaFlex II Go to a PC and then connecting with the app.

- 1) Place the device into Pairing Mode by pressing and holding the power button on device until 4 beeps and release the button. The 4th LED will blink green.

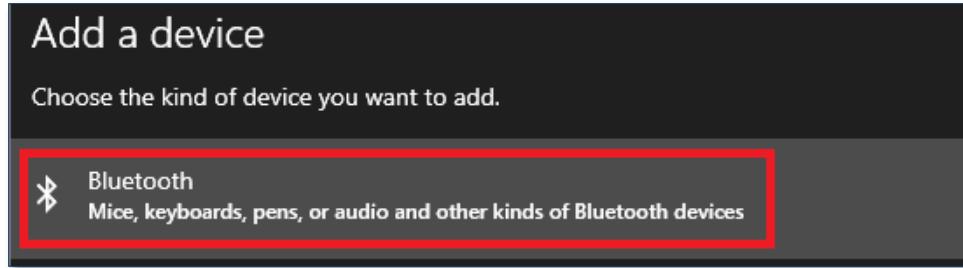


- 2) On the PC, open **Settings** and choose **Bluetooth & other devices**. Make sure the “Bluetooth” is turned **ON**. On the right panel, choose **Add Bluetooth or other device**.

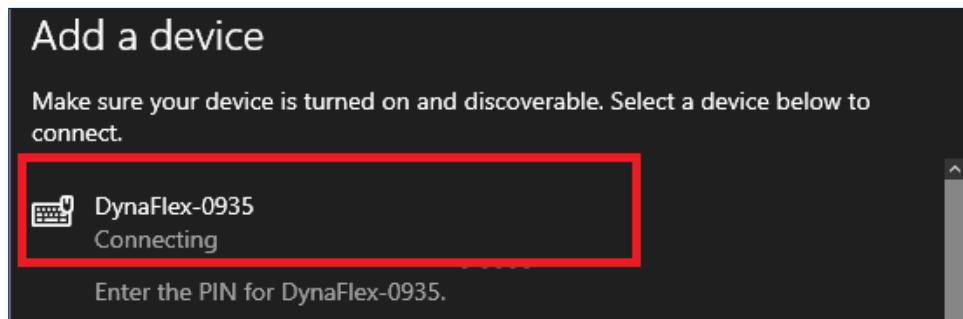


- 3) At the **Add a device** window, select **Bluetooth**.

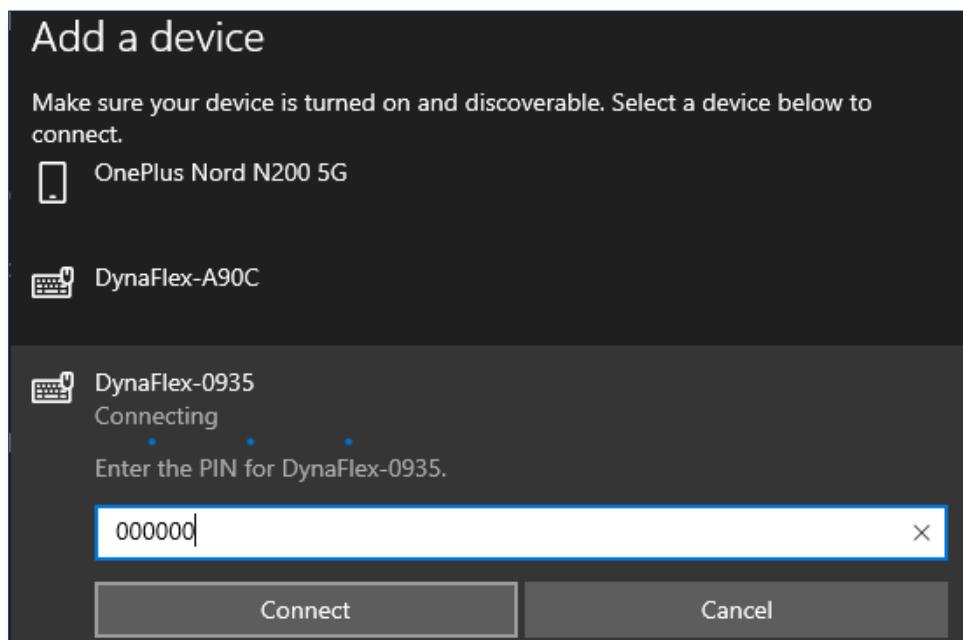
2 - How to Connect to MTUSDKNET Demo



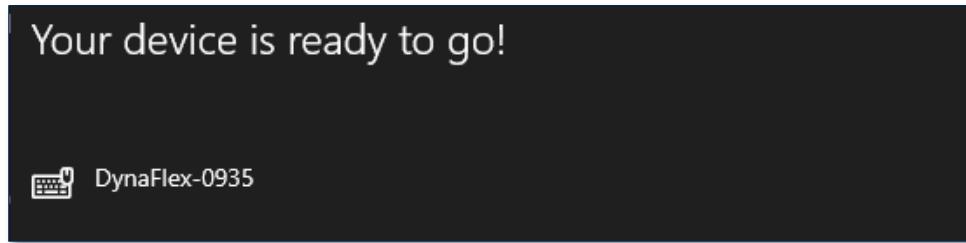
- 4) To pair, click on the device name that was been retrieved from DynaFlex Utility.



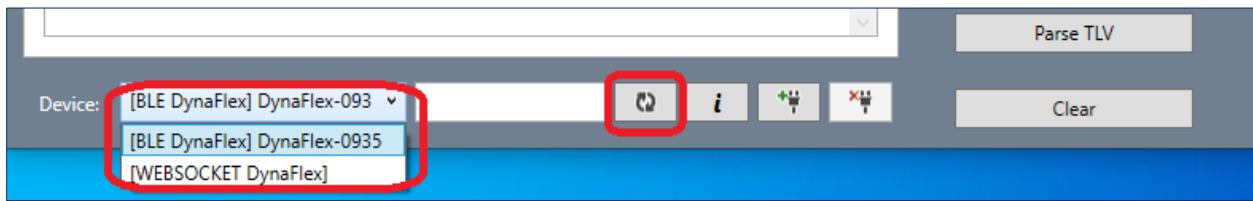
- 5) Enter the PIN, ("000000" by default), and press **Connect**.



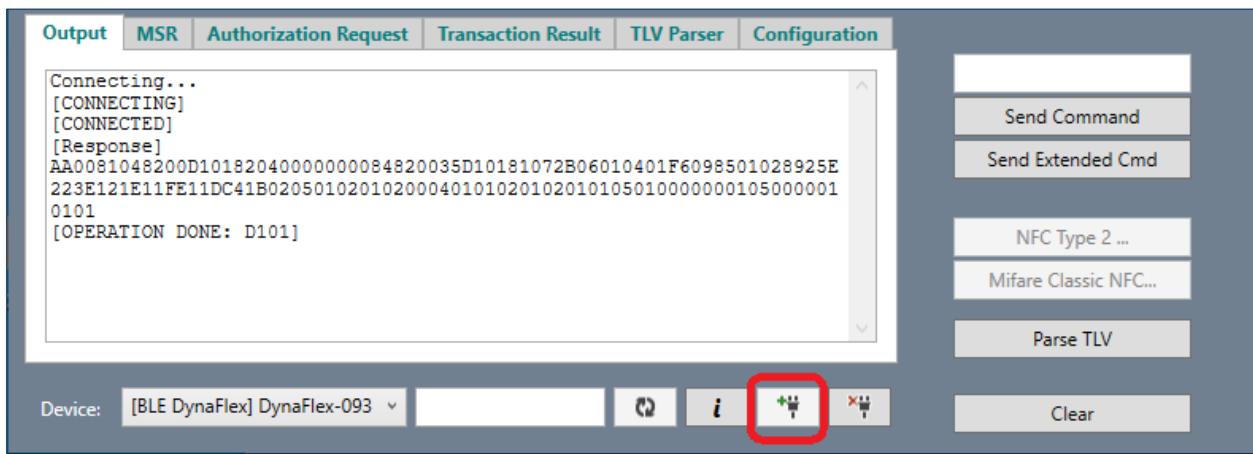
2 - How to Connect to MTUSDKNET Demo



- 6) Launch the MTUSDKNET Demo, and press the **Scan** button to display a list of available devices.
- 7) Click on **Device** list to find the added BLE device similar as below.



- 8) Press the **Connect** button to connect to the device.

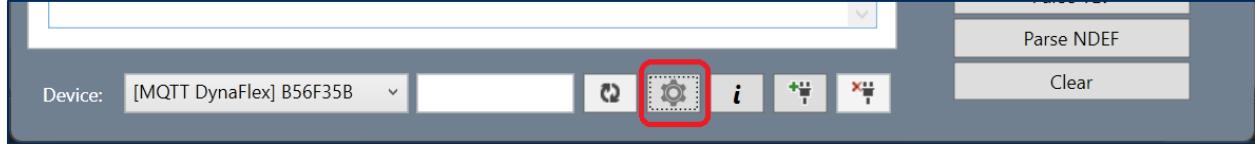


2 - How to Connect to MTUSDKNET Demo

2.5 Connect by MQTT

Before connecting by MQTT (Message Queuing Telemetry Transport), the device must be a DynaFlex II PED, which is already configured for MQTT.

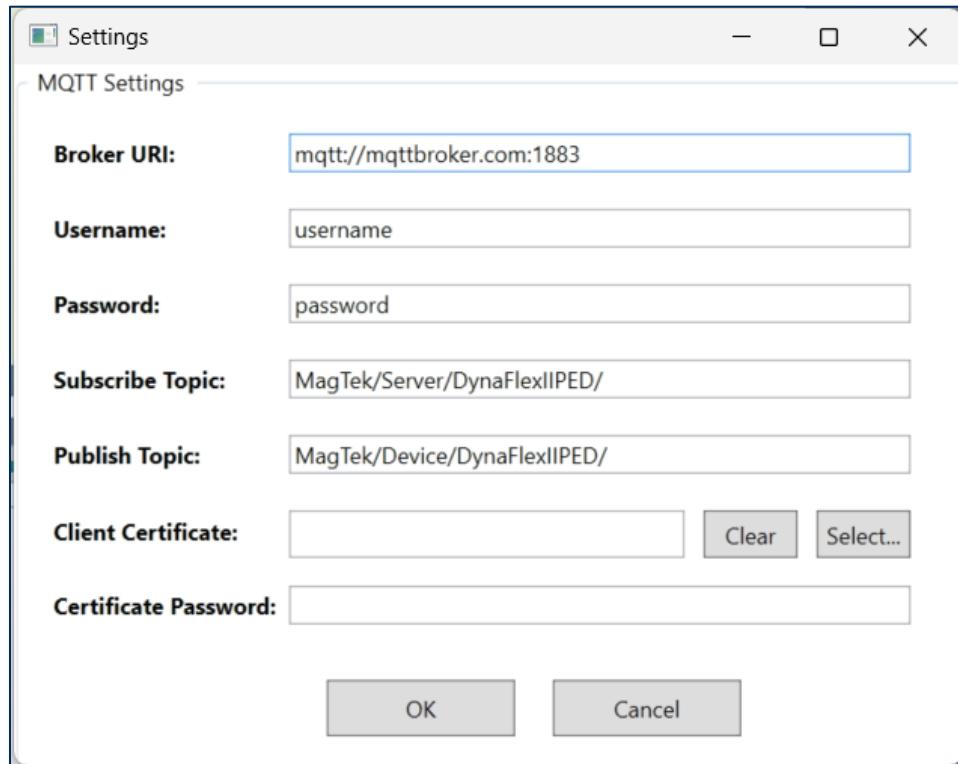
- 1) Launch the MTUSDKNET Demo, and press the **Settings** button.



- 2) Enter the MQTT settings for the **Broker**, **Subscribe Topic**, and **Publish Topic** according to the device's MQTT configuration. In this example, Subscribe references the "Server" and Publish references the "Device", opposite of what may be configured in the device.

Enter **Username** and **Password** if required by the Broker.

Press **OK** when completed. Example shown below.

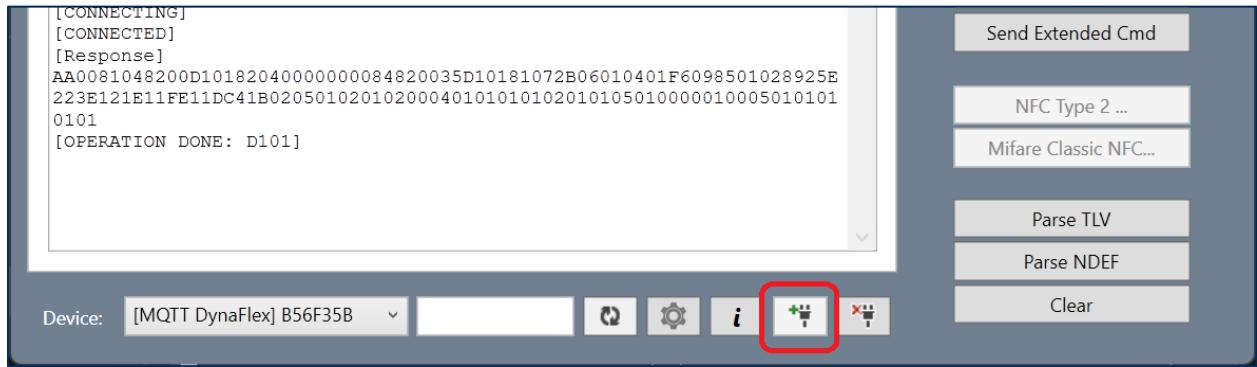


- 3) Press the **Scan** button to update the list of available devices, then select a device.

2 - How to Connect to MTUSDKNET Demo



- 4) Press the **Connect** button to connect to the device.



- 5) Whenever there is a change in the device list, the **Scan** button will turn yellow in color. Press it to update the device list. This refresh is not allowed when connected to a device.



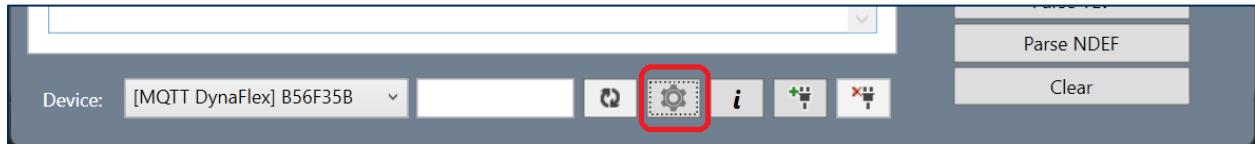
2 - How to Connect to MTUSDKNET Demo

2.6 Connect by MQTT with mTLS

This section is for establishing a connection to a Broker that requires mTLS (mutual authentication).

Before connecting by MQTT (Message Queuing Telemetry Transport), the device must be a DynaFlex II PED, which is already configured for MQTT with mTLS.

- 1) Launch the MTUSDKNET Demo, and press the **Settings** button.

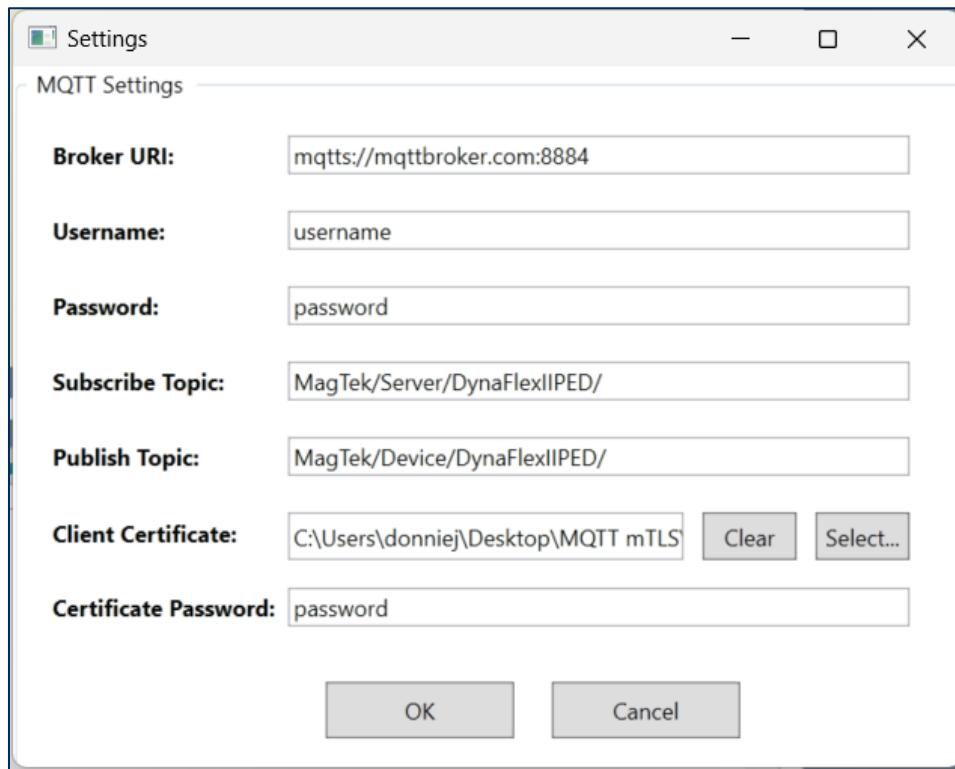


- 2) Enter the MQTT settings for the **Broker**, **Subscribe Topic**, and **Publish Topic** according to the device's MQTT configuration. In this example, Subscribe references the "Server" and Publish references the "Device", opposite of what may be configured in the device.

Enter **Username** and **Password** if required by the Broker.

Select a **Client Certificate** .p12 file, and enter the **Certificate Password**.

Press **OK** when completed. Example shown below.

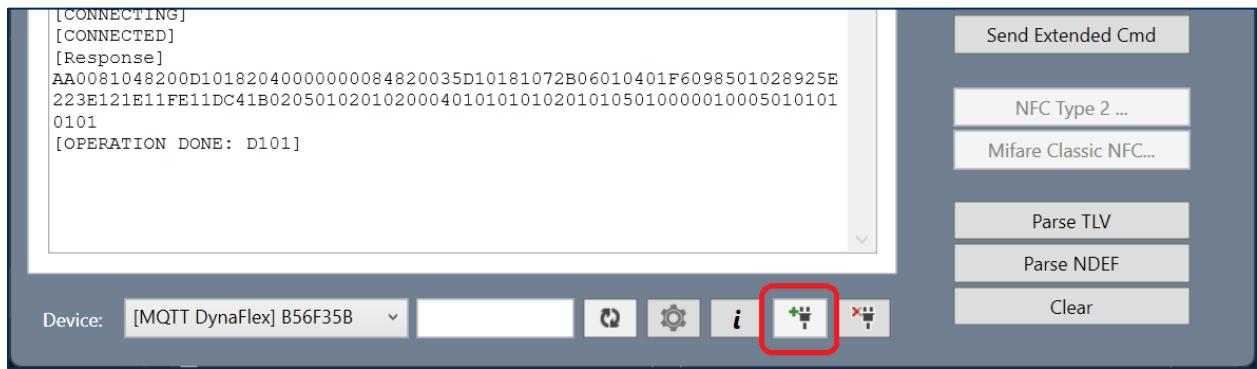


- 3) Press the **Scan** button to update the list of available devices, then select a device.

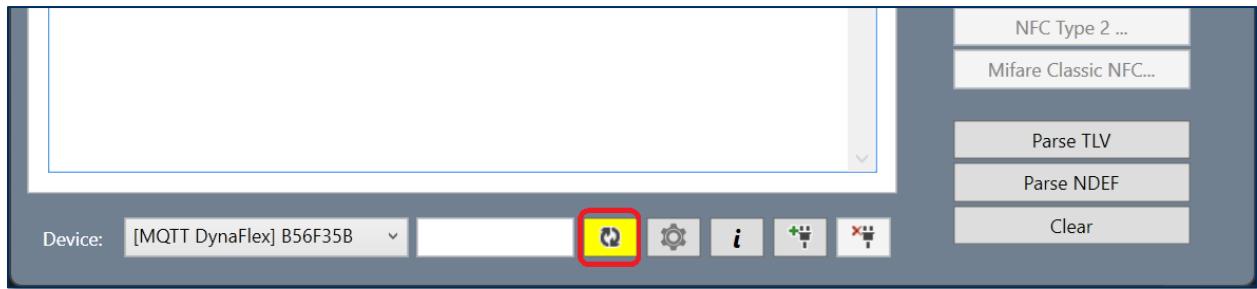
2 - How to Connect to MTUSDKNET Demo



- 4) Press the **Connect** button to connect to the device.



- 5) Whenever there is a change in the device list, the **Scan** button will turn yellow in color. Press it to update the device list. This refresh is not allowed when connected to a device.



3 - How to use the MTUSDKNET Demo

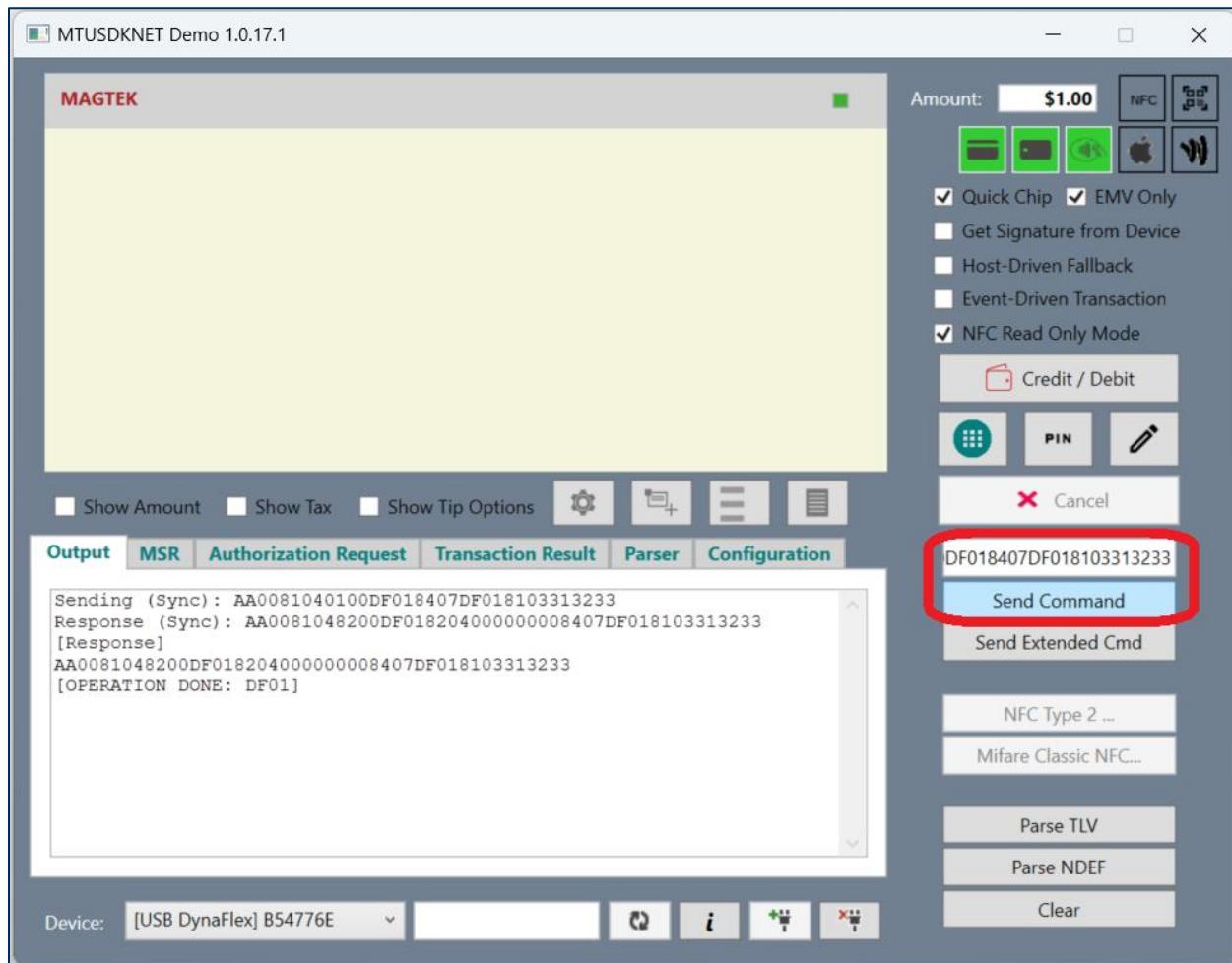
3 How to use the MTUSDKNET Demo

The following instructions detail how to use the MTUSDKNET Demo on Windows PC via USB interface. Same instructions apply to the other interface types.

MTUSDKNET Demo queries for device features upon connecting. Some demo features are disabled based on what is supported on the device.

3.1 Send Command

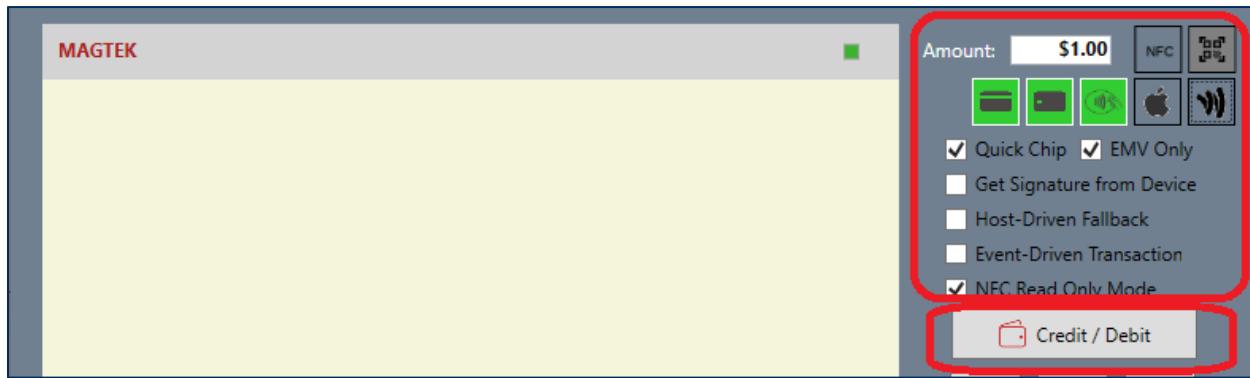
- 1) To send a command to the device, input custom command in the command text box and press the **Send** button. Example Echo: AA0081040100DF018407DF018103313233



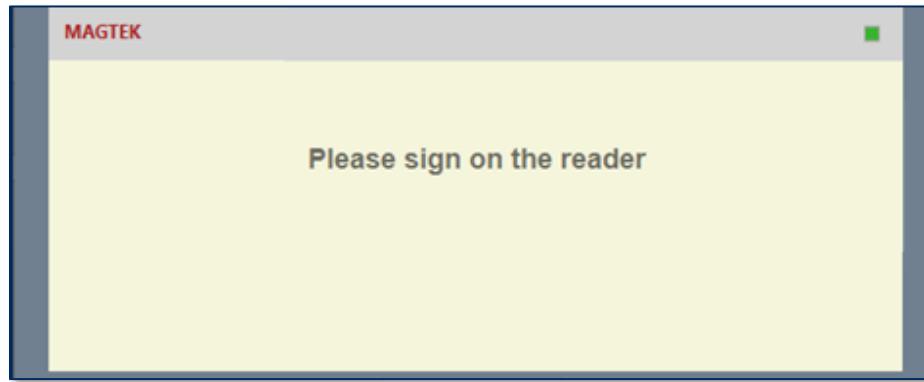
3 - How to use the MTUSDKNET Demo

3.2 EMV Transaction

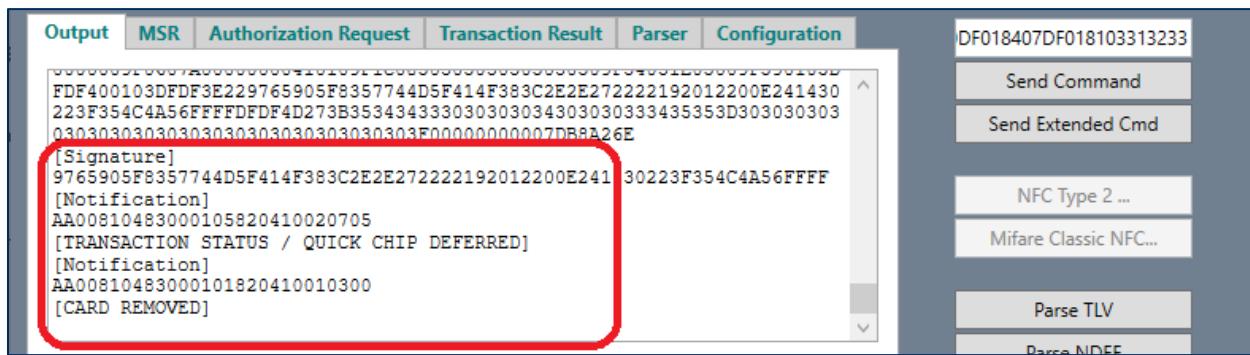
- To perform an EMV transaction, select the desired card types and EMV options, then press the **Credit/Debit** button to start the transaction.



- Follow any instructions on the device or demo software.

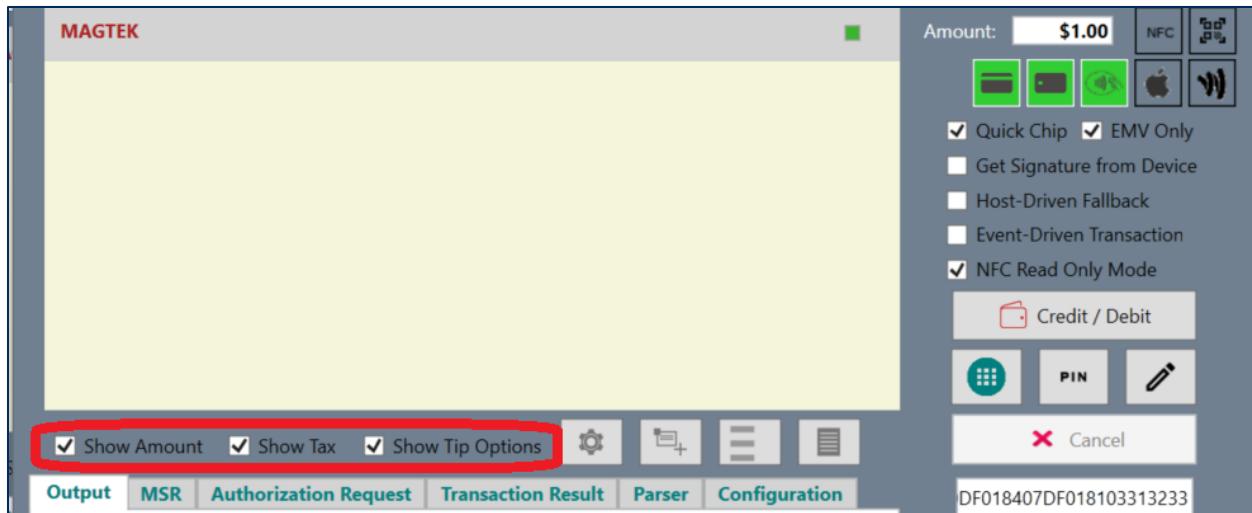


- After the transaction, the status will be displayed in the **Output** tab, and you can also view more detailed information in the **Transaction Result** tab.



- To cancel the EMV transaction, press the **Cancel** button. Please note that the cancel feature will only work before the payment method is presented.
- To perform transactions with Tip/Tax option displayed on the device screen, check **Show Amount**, **(Quick Chip)**, **Show Tip Options** and **Show Tax**, and then press the **Credit/Debit** button.

3 - How to use the MTUSDKNET Demo



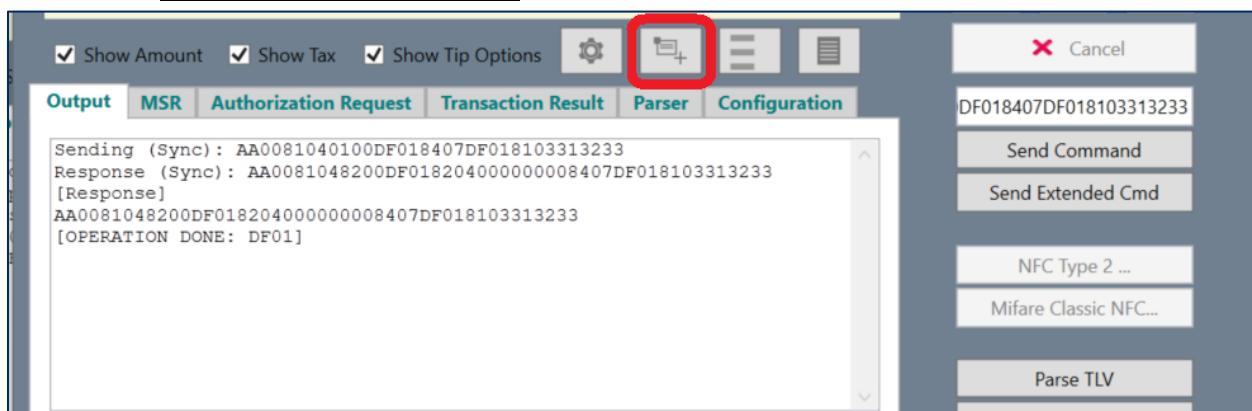
The device screen will prompt to select the tip amount.

To enter an amount not shown, press **Custom** to enter the custom amount.

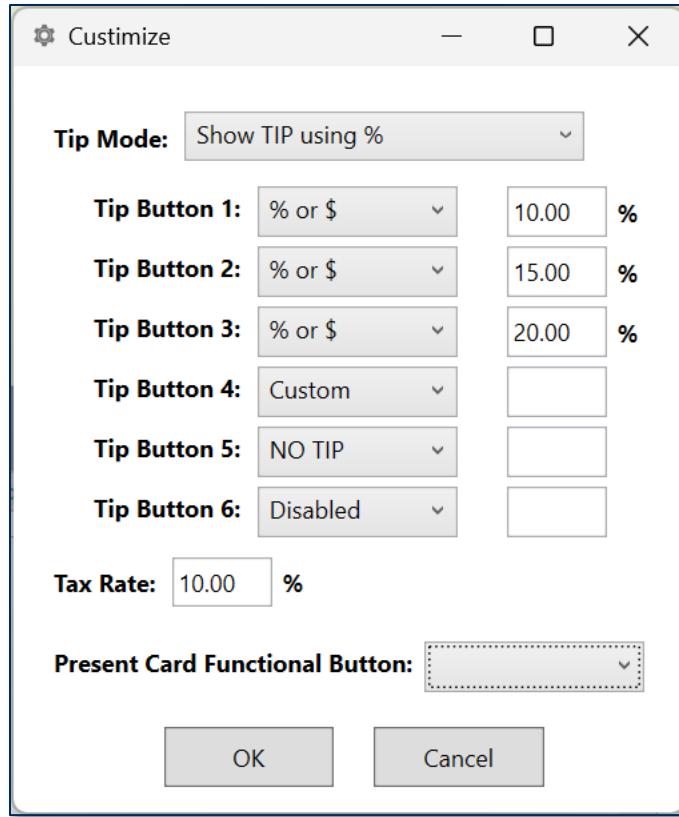
After selecting the amount, press the **Submit** button on the screen. After submitting, continue with the transaction by presenting the payment method. The Tip amount may be edited before presenting the payment method by pressing **Edit Tip** on the screen.

Customize Tip/Tax

Press the **Customize Tip/Tax/Options** buttons.



3 - How to use the MTUSDKNET Demo

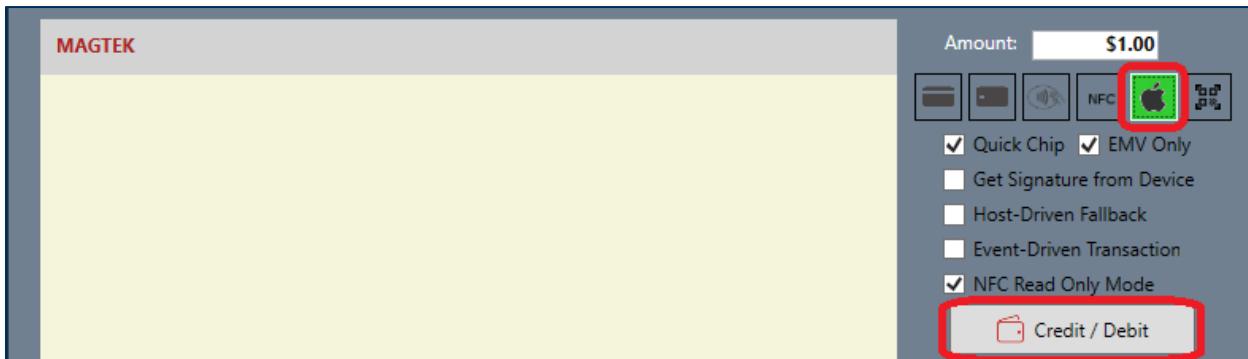


- Tip Mode
 - **Show TIP using %** - Display as a percent at the start of the transaction.
 - **Show TIP using \$** - Display as a dollar value at the start of the transaction.
 - **Show +TIP button using %** - Only display as a percent when the +TIP button is pressed on the screen. Present card is displayed first.
 - **Show +TIP button using \$** - Only display as a dollar value when the +TIP button is pressed on the screen. Present card is displayed first.
- Tip Buttons 1 to 6
 - **% or \$** - Display percent or dollar.
 - **Custom** - Allow custom tip to be entered.
 - **NO TIP** - Removes any tip applied.
 - **Disabled** - Disables the button.
- Tax Rate – Tax rate calculated on the amount without tip.
- Present Card Functional Button – Enable the Function button for EMV transactions. Button displays a predefined String ID message.

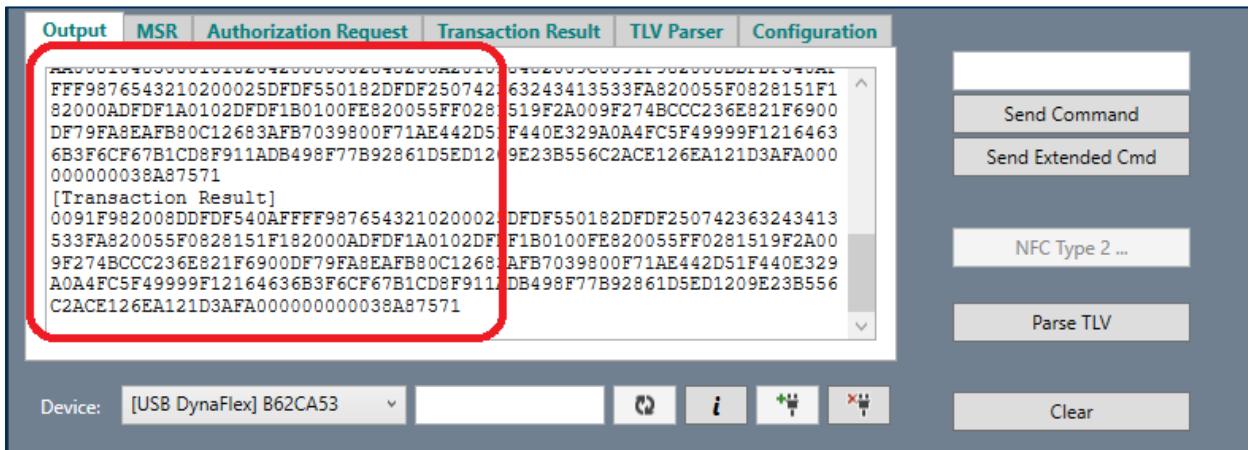
3 - How to use the MTUSDKNET Demo

3.3 Apple VAS Transaction

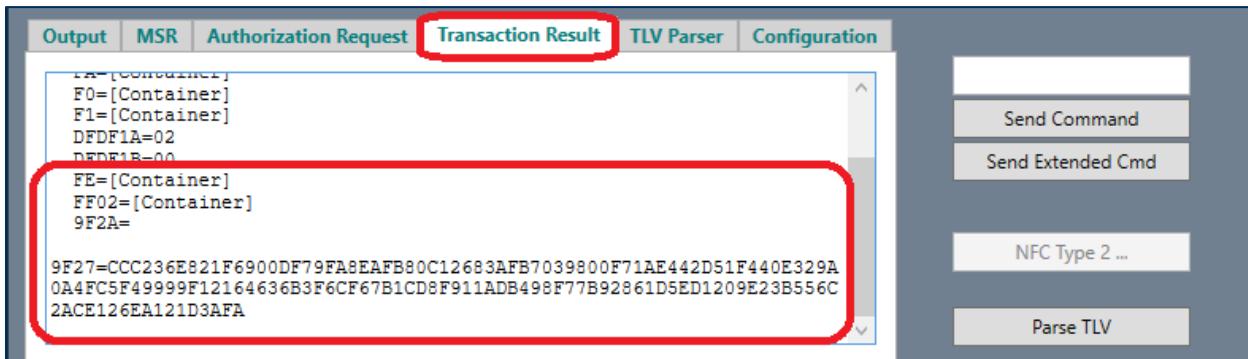
- To perform an Apple VAS (value-added service) supported transaction, select the Apple option, and then press the **Credit/Debit** button to start the transaction.



- Present the payment device with Apple VAS near the reader to continue the contactless transaction.
- After the transaction, the status will be displayed in the **Output** tab.



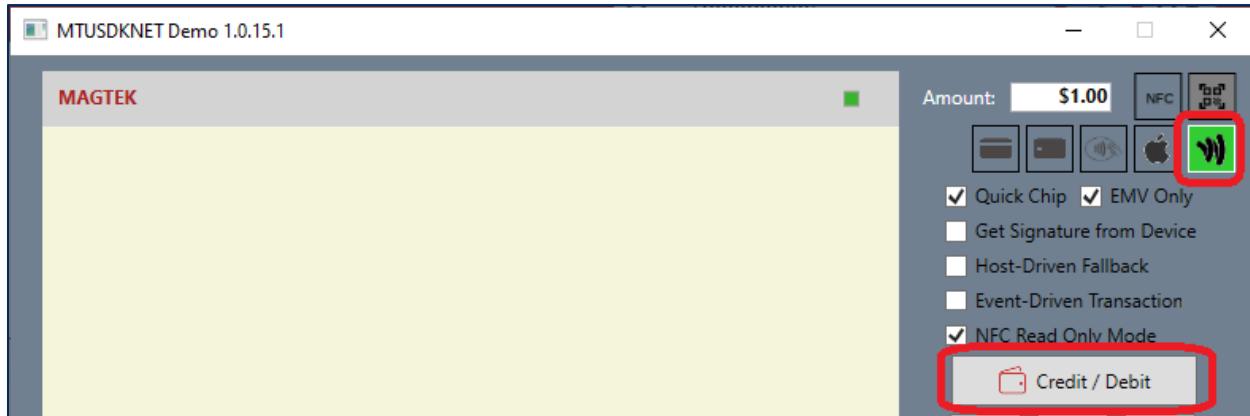
- The **Transaction Result** tab shows details of the FE TLV object containing the Apple VAS data.



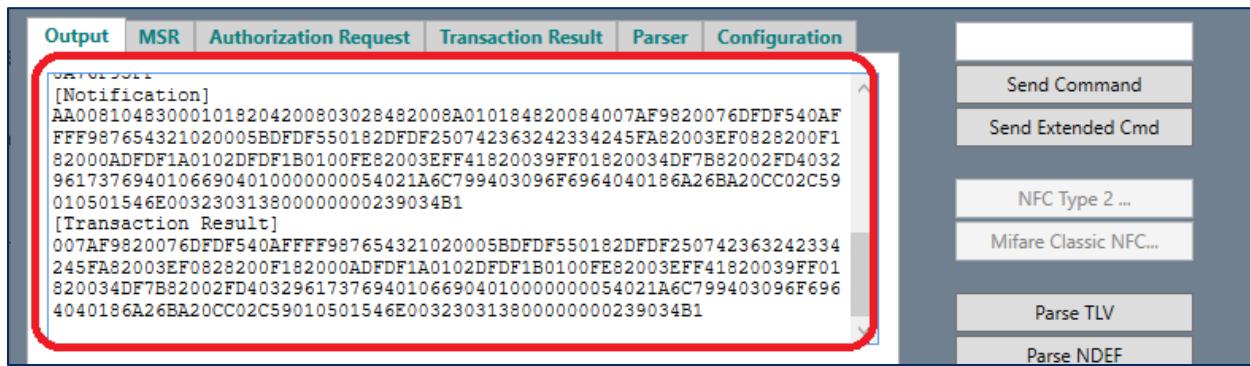
3 - How to use the MTUSDKNET Demo

3.4 Google VAS Transaction

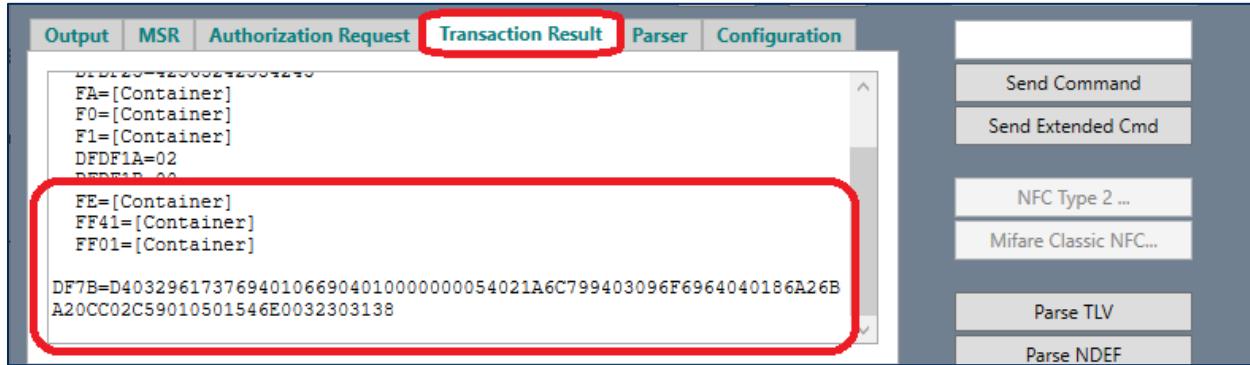
- To perform a Google Wallet Smart Tap VAS (value-added service) supported transaction, select the Google Wallet option, and then press the **Credit/Debit** button to start the transaction.



- Present the payment device with Google Wallet near the reader to continue the contactless transaction.
- After the transaction, the status will be displayed in the **Output** tab.



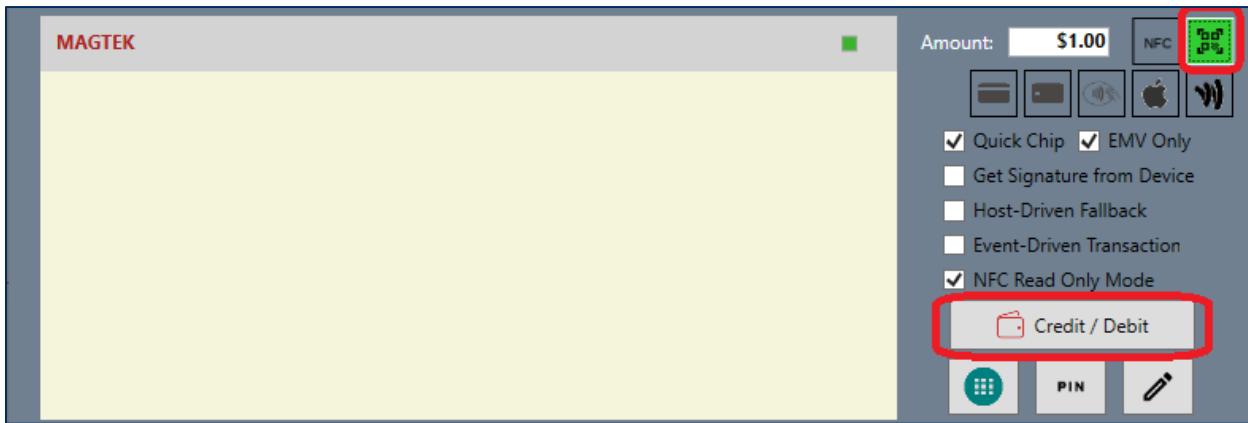
- The **Transaction Result** tab shows details of the FE TLV object containing the Google VAS data.



3 - How to use the MTUSDKNET Demo

3.5 Barcode Transaction

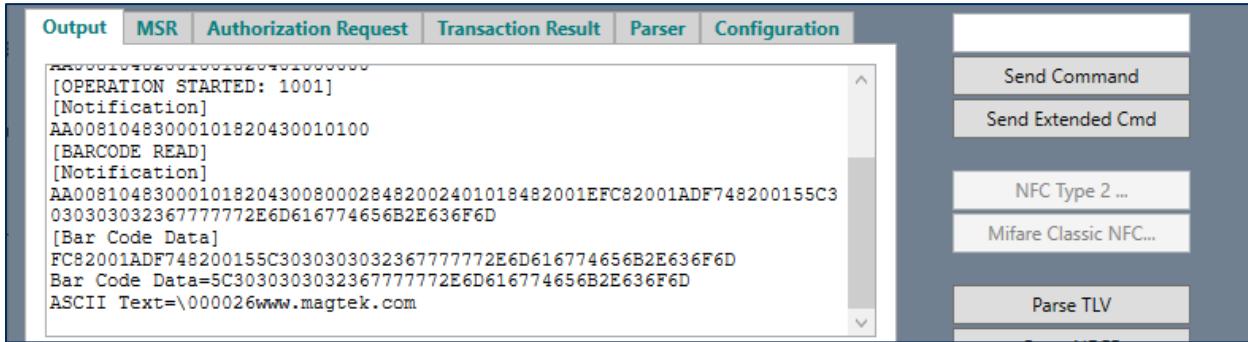
- 1) To perform a Barcode transaction, select the Barcode option, and then press the **Credit/Debit** button to start the transaction.



- 2) The BCR LED will turn on. Present a barcode near the device's BCR, which is located at the top center of the device.
- 3) The BCR LED will turn off after the BCR scan is complete.

Note, if the LED flickers but remains on, the scan is not complete. Slowly center the barcode. If centered, slowly move the barcode away from the device. The larger the barcode size, the further away it should be.

- 4) Barcode data will be shown in the **Output** tab.



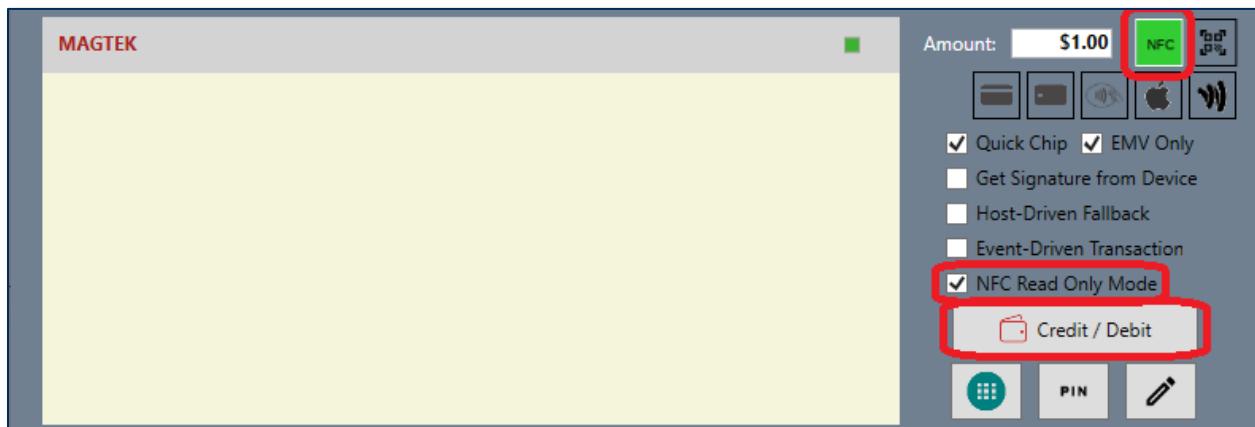
3 - How to use the MTUSDKNET Demo

3.6 NFC Type 2 / Mifare Classic/ Mifare DESFire Light Tag - Read

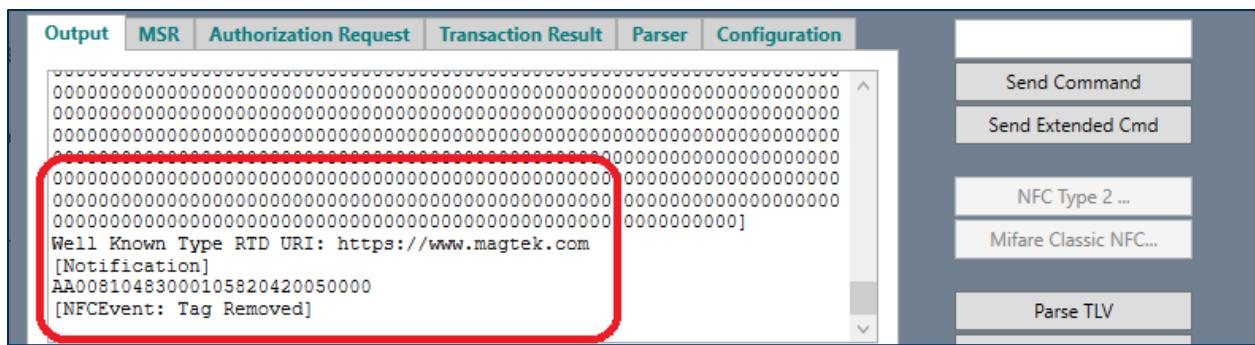
An NFC tag (Near Field Communication) can either be a passive type: card, badge, sticker, or an active type: mobile device.

NFC tag operations involves reading and writing data in multiple small segments. Because of this, it is important to have the NFC tag be at rest during these operations. The usual quick tap is not sufficient. In this section, “Present an NFC tag” means to bring the tag next to the device and leave it there. “Tap an NFC tag” means to bring the tag next to the device long enough to read the tag. The Output log will stop scrolling when reading or writing is complete.

- 1) To perform an NFC tag reading transaction, select the **NFC** option, check **NFC Read Only Mode**, and then press the **Credit/Debit** button to start the transaction.



- 2) Present an NFC Type 2 tag, Mifare Classic tag, or Mifare DESFire Light tag to the device until there is a beep. Output tab displays tag data similar as shown below.

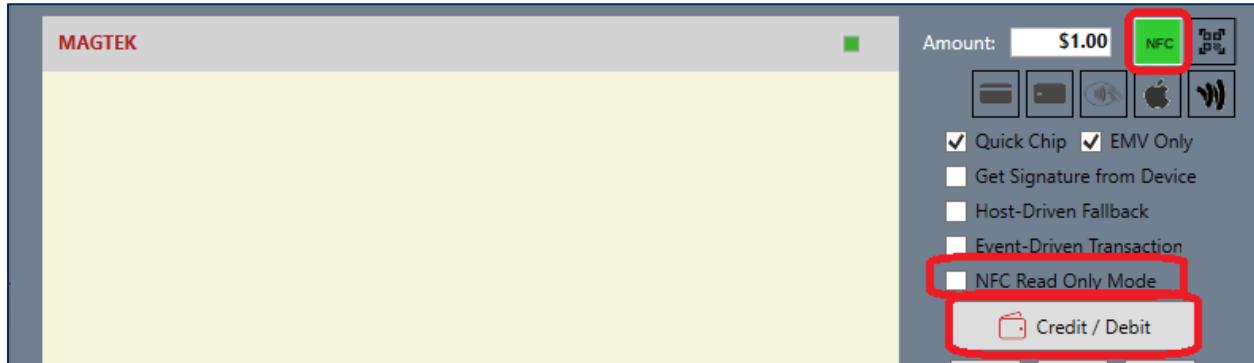


3 - How to use the MTUSDKNET Demo

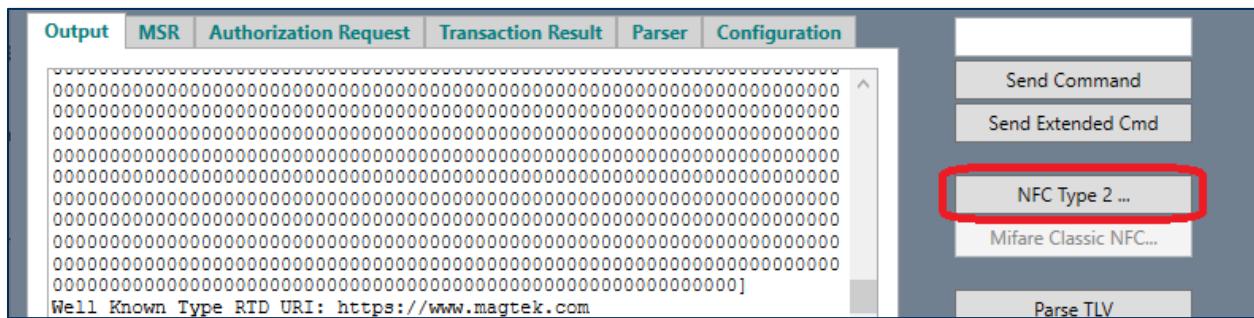
3.7 NFC Type 2 Tag - Write

Writing to an NFC Type 2 tag involves reading and writing data in multiple small segments. Because of this, it is important to have the tag be at rest during these operations. The usual quick tap is not sufficient. In this section, “Present an NFC tag” means to bring the tag next to the device and leave it there.

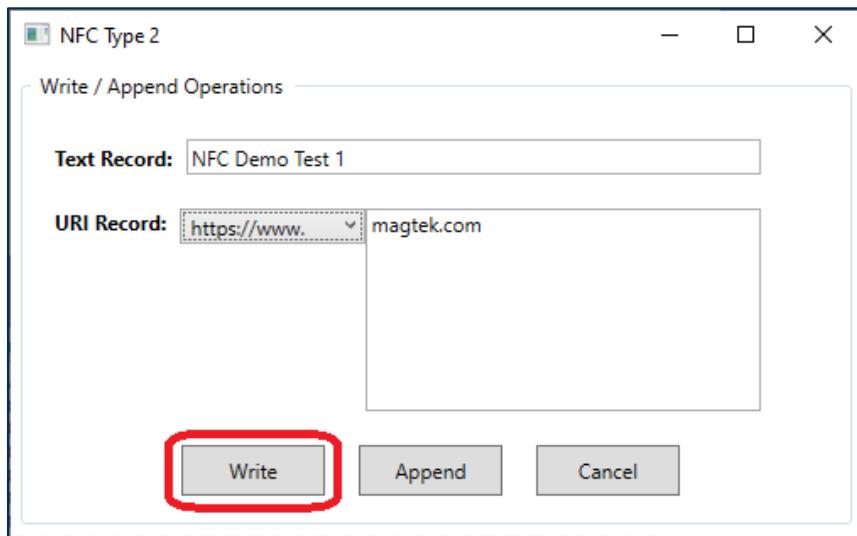
- 1) To write to an NFC tag, select the **NFC** option, uncheck **NFC Read Only Mode**, and then press the **Credit / Debit** button. Present an NFC Type 2 tag and leave the tag next to the device.



- 2) The NFC tag will be read. Press the **NFC Type 2** button.

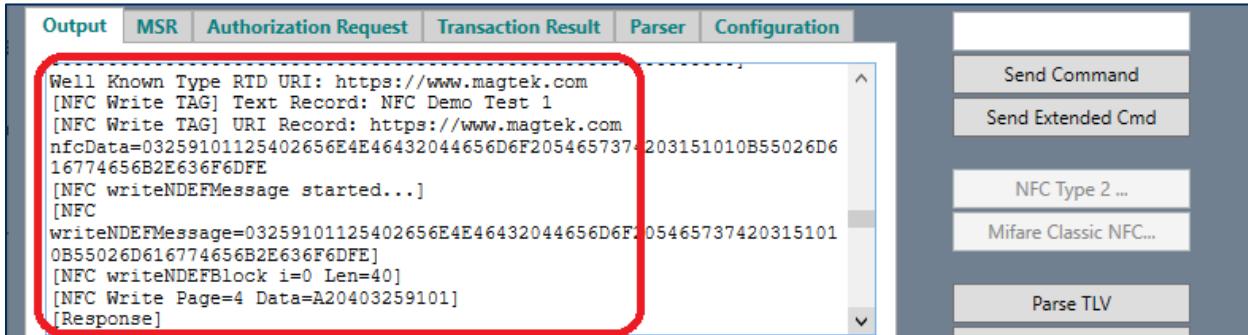


- 3) Enter a value for **Text** and **URI** records, and then press the **Write** button to write the records to the NFC tag.

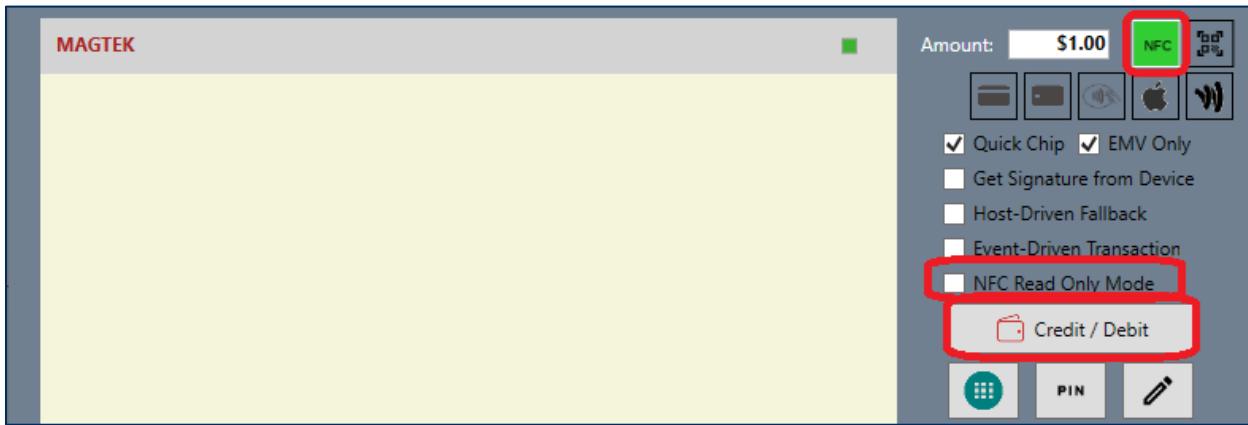


3 - How to use the MTUSDKNET Demo

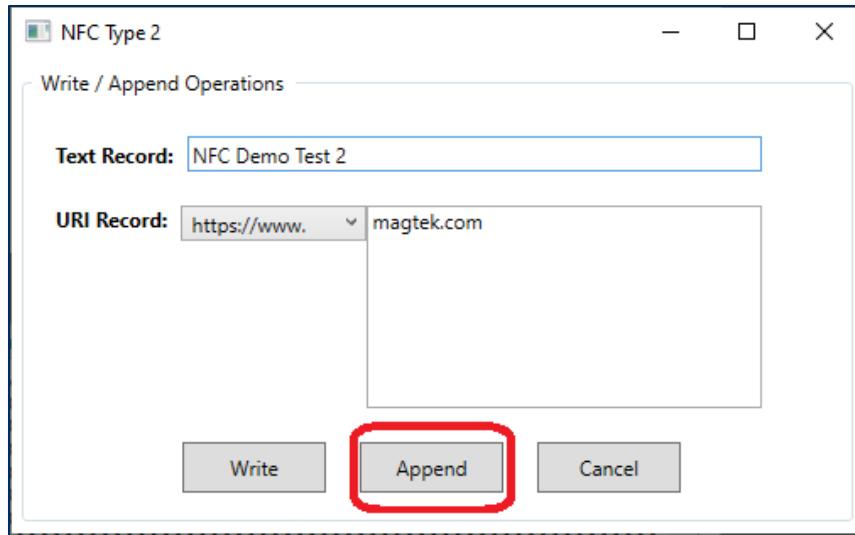
- 4) At the Output tab, wait until the writing operation is completed with a beep sound. Scroll up to view the records written similar to as shown here.



- 5) Appending a record is the same except the record list is increased each time.
6) To Append records, first start and NFC transaction by selecting the **NFC** option, uncheck **NFC Read Only Mode**, and then press the **Credit / Debit** button. Present an NFC tag and leave the tag next to the device.

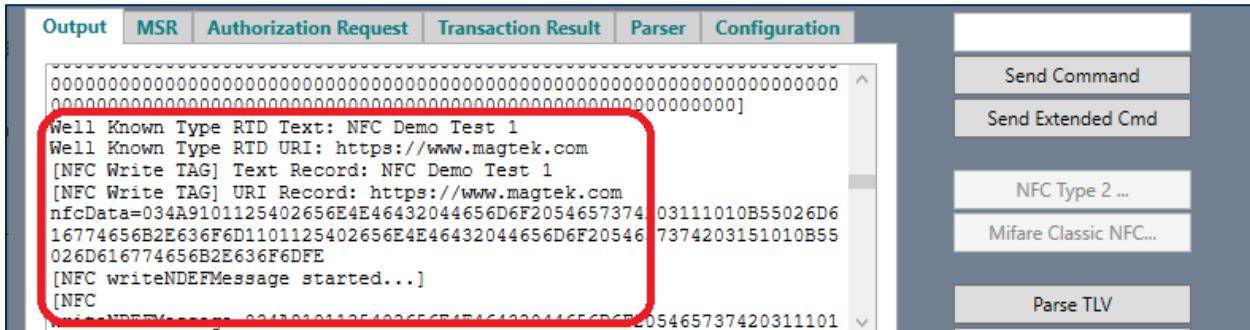


- 7) Enter a value for **Text** and **URI** records, and then press the **Append** button to append the records to the NFC tag.



3 - How to use the MTUSDKNET Demo

- 8) At the Output tab, wait until the appending operation is completed with a beep sound. As the number of records increases, so too does the time to append. Now start another transaction with the NFC tag to view the appended records similar as shown here.

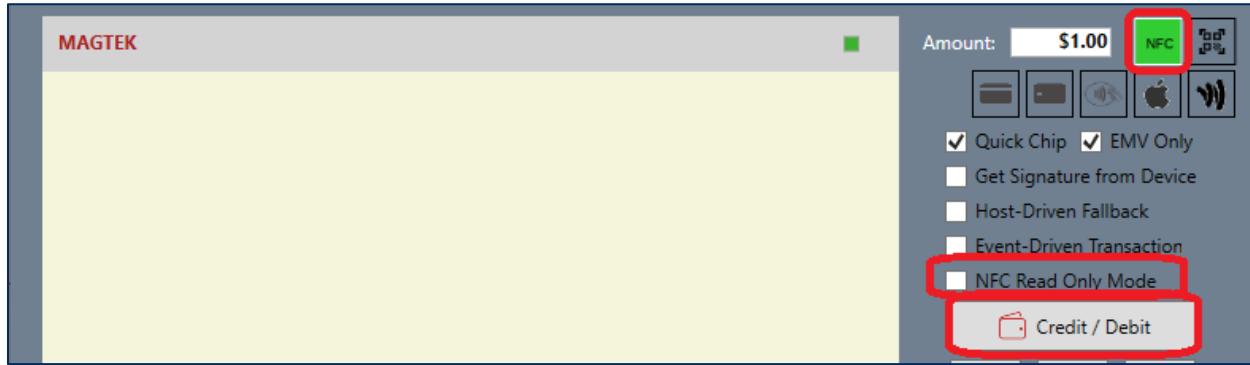


3 - How to use the MTUSDKNET Demo

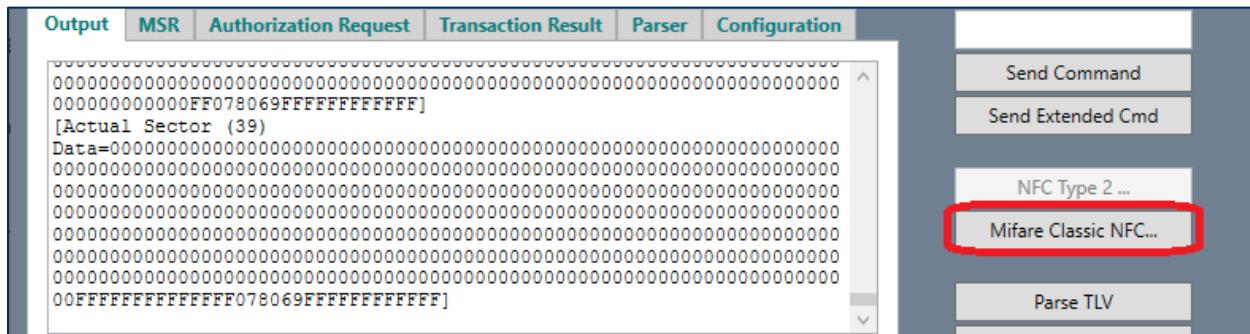
3.8 Mifare Classic Tag - Write

Writing to a Mifare Classic tag involves reading and writing data in multiple small segments. Because of this, it is important to have the tag be at rest during these operations. The usual quick tap is not sufficient. In this section, “Present an NFC tag” means to bring the tag next to the device and leave it there.

- 1) To write to a Mifare Classic tag, select the **NFC** option, uncheck **NFC Read Only Mode**, and then press the **Credit / Debit** button. Present a Mifare Classic tag and leave the tag next to the device.



- 2) Each sector of the Mifare Classic tag will be read. To write to the tag, press the **Mifare Classic NFC** button.

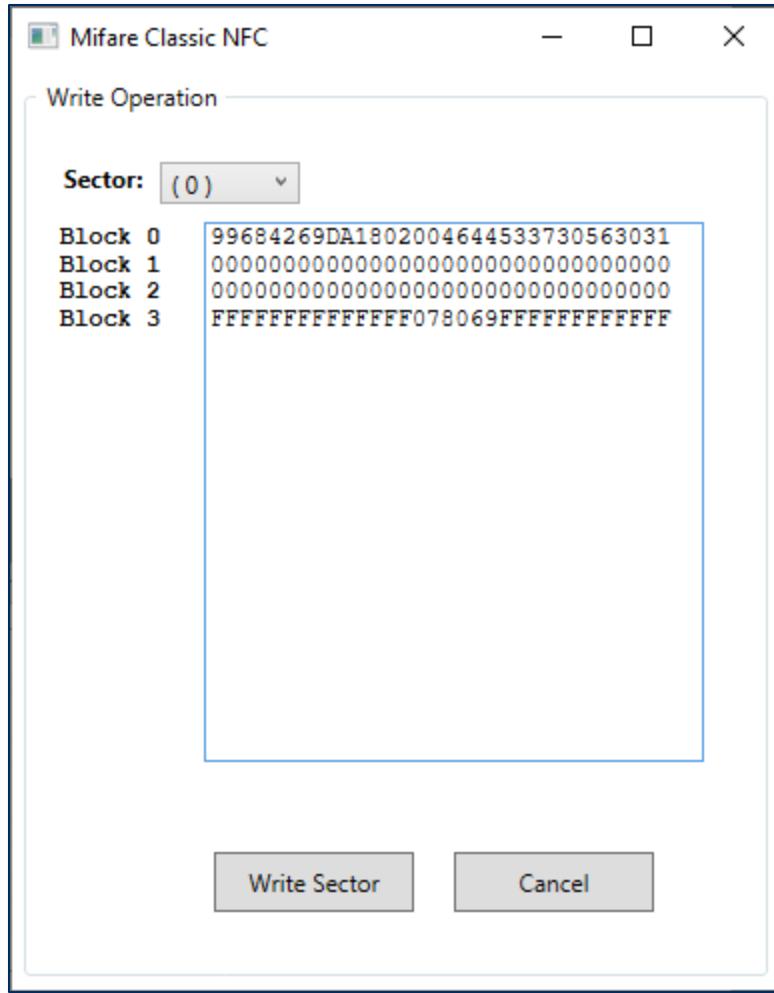


- 3) Select a sector. Update the value of a Block with a hexadecimal value. Press the **Write Sector** button.

Details for modifying a Block

- Block updating must be its full length i.e. 16 byte block has to be 16 bytes.
- At Sector 0, Block 0 is reserved.
- Sector blocks vary by card and within a card. Some Sectors hold 4 Blocks, some 16 Blocks.
- The last Block of each Sector stores key data for accessing the Sector. It is best to not change Block 3 or Block 15 during testing of the demo.

3 - How to use the MTUSDKNET Demo



- 4) At the Output tab, wait until the writing operation is completed with a single beep sound. Scroll up to view the records written as shown similarly here.

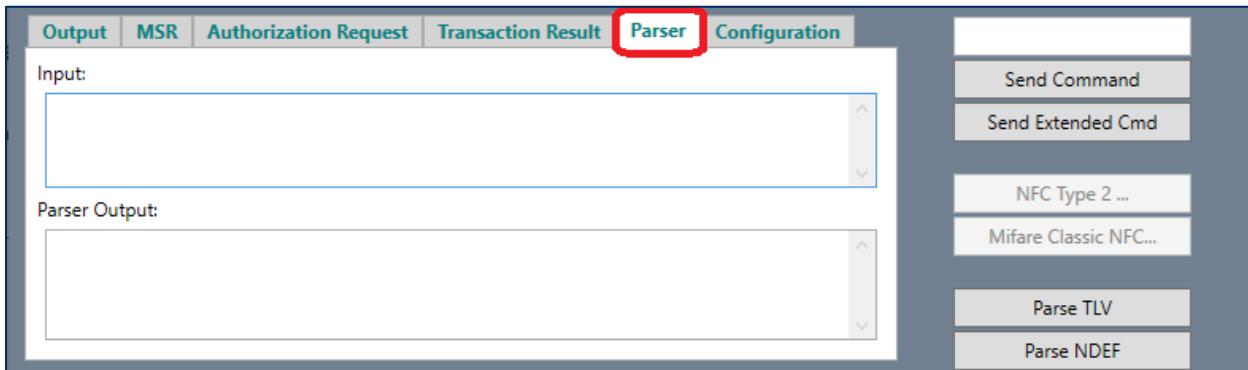
Output	MSR	Authorization Request	Transaction Result	Parser	Configuration
[Classic Write Sector (0) Command=A000010300FFFFFFFFFFFFF444400 00000000000000000000000000FFFFFFFFF078069FFFFFFFFF [Response] AA00810482001101820401000000840711018101008200 [OPERATION STARTED: 1101] [NFC CLASSIC_4K_WRITE Sector (0) done] [Notification] AA00810483000105820420050000 [NFCEvent: Tag Removed]					<p>Send Command</p> <p>Send Extended Cmd</p> <p>NFC Type 2 ...</p> <p>Mifare Classic NFC...</p> <p>Parse TLV</p>

3 - How to use the MTUSDKNET Demo

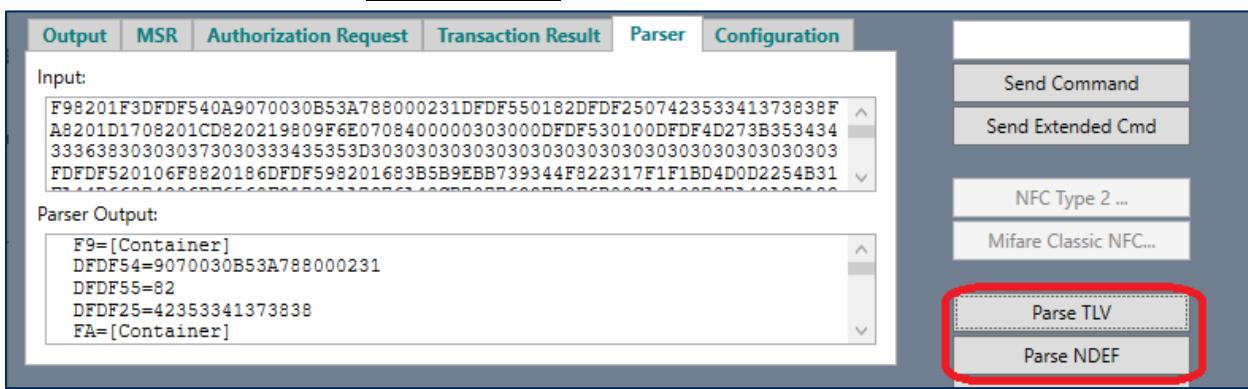
3.9 Parser

To parse custom TLV blob and NDEF data, follow these steps.

- 1) Press the **Parser** tab.



- 2) Copy and paste the TLV data to be parsed into the **Input** text box, then press the **Parse TVL** button. The result will show in the **Parsed Output** text box.

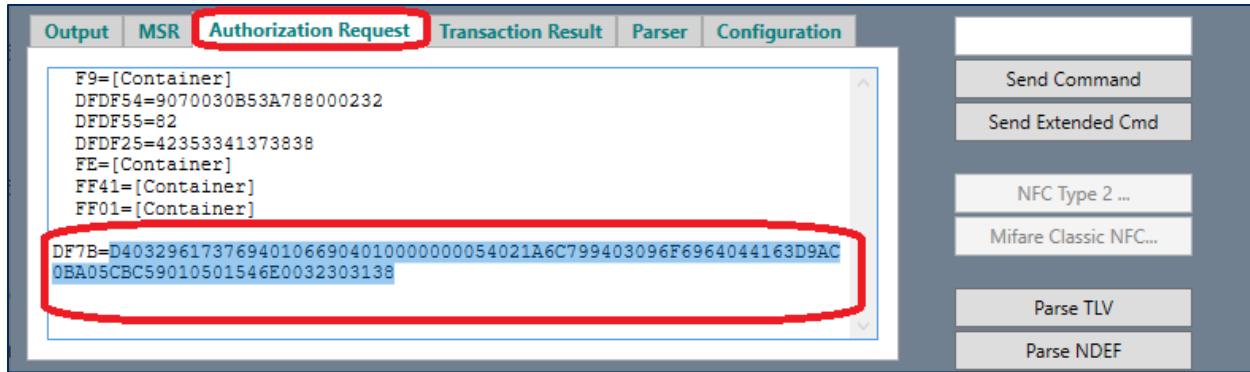


- 3) The response size bytes, generally 2 bytes shown in bold below, must be removed before parsing. This example shows the Authorization Request before and after the response size is removed.

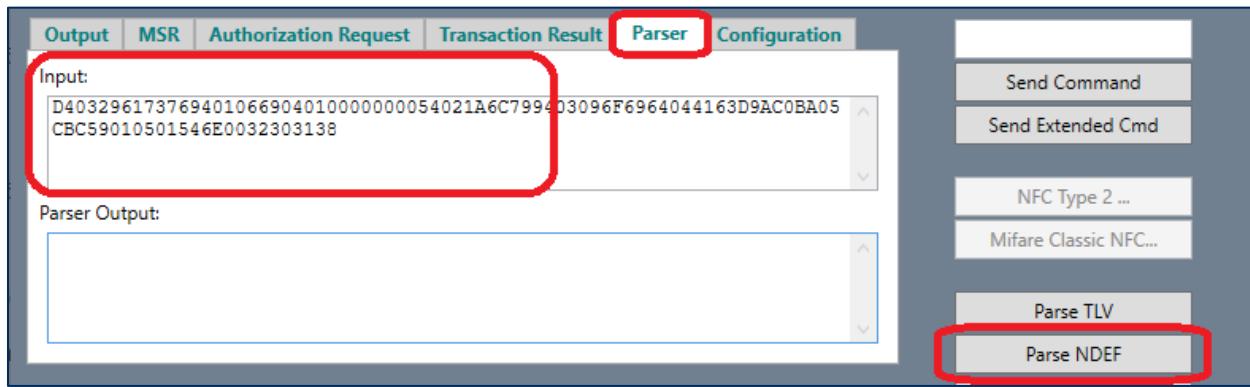
Before	01F7F98201F3DFDF540AFFFF9876543210200026DFDF55. . .
After	F98201F3DFDF540AFFFF9876543210200026DFDF55. . .

3 - How to use the MTUSDKNET Demo

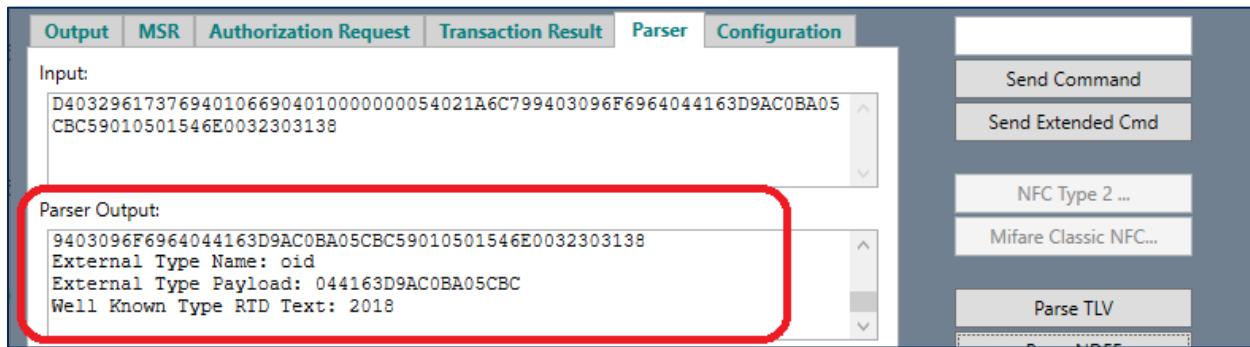
- 4) To parse NDEF data, perform a Google VAS transaction. From the **Authorization Request** tab, copy the data from tag **DF7B**.



- 5) At **Parser** tab, paste the **DF7B** data into the **Input** box and press the **Parse NDEF** button.



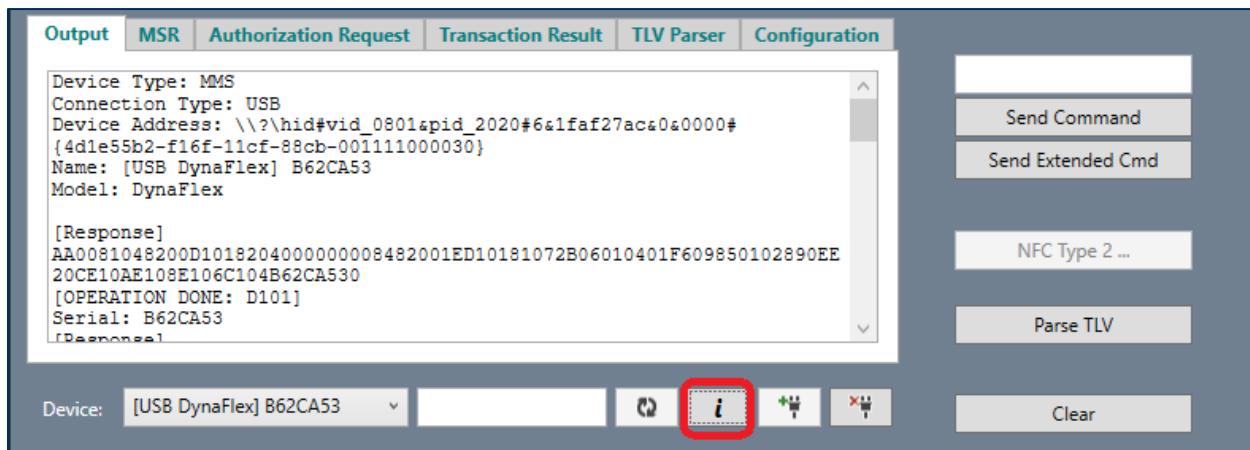
- 6) Scroll the **Parse Output** box to view the result.



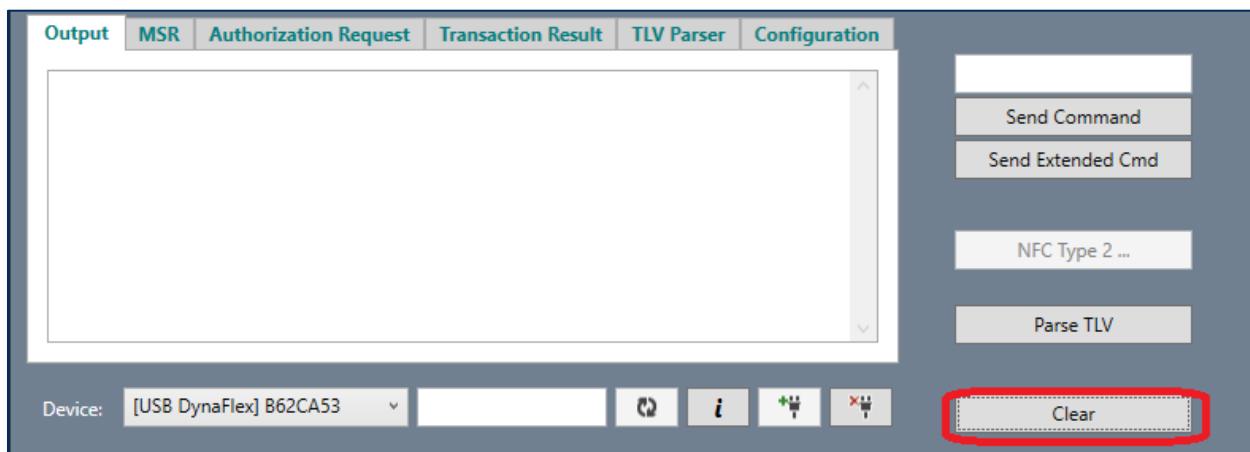
3 - How to use the MTUSDKNET Demo

3.10 Device Info

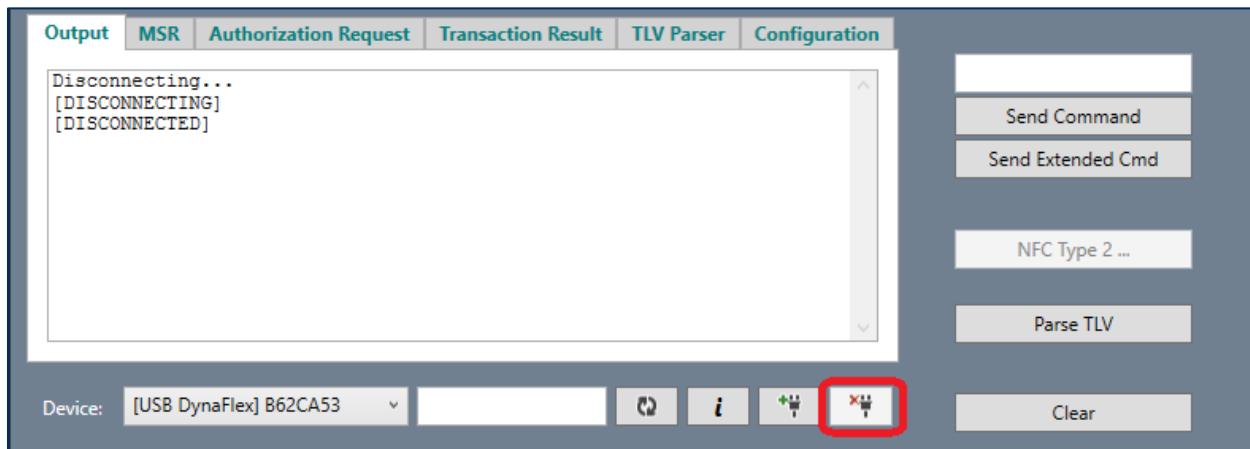
- To view the device information, press the **Output** tab, then press **Get Info** button. An example of requesting device's information is shown below.



- To clear the screen, press the **Clear** button.



- To close the device, press the **Disconnect** button.



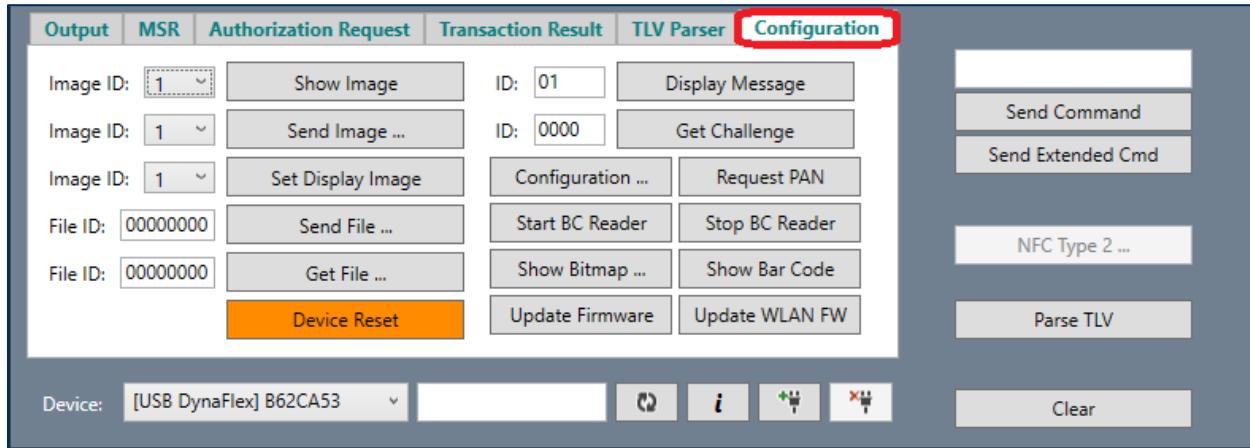
4 How to use Configuration

4.1 Send Image

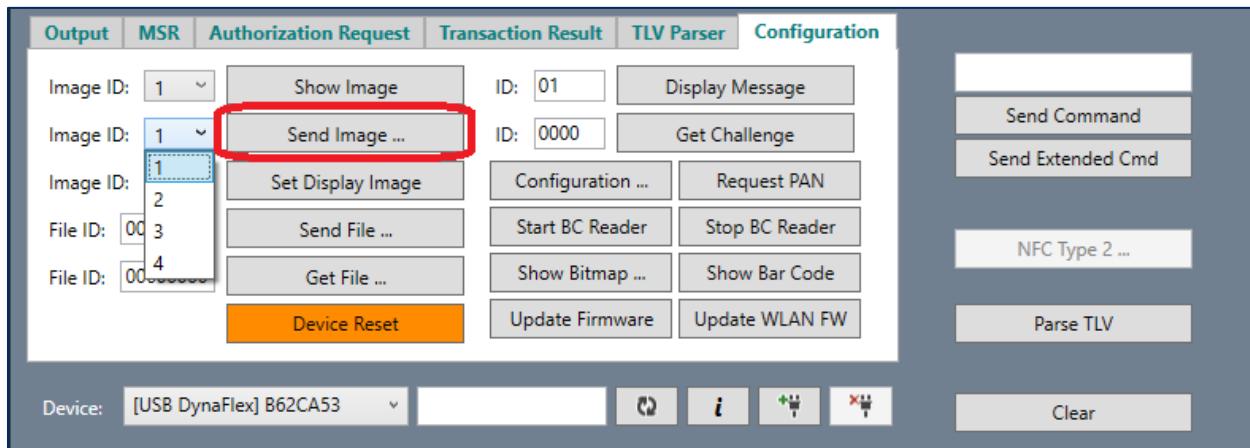
The following describes how to load and display images. An image replaces the Welcome screen when the device is in an idle connected state.

Images must be BMP format, 160KB or smaller with no compression, maximum 320px by 240px, with color depth 16 color, 256 color, 16-bit color, or 24-bit color. Images smaller than the maximum pixel size are centered on the display. Images at maximum pixel screen size must be 16-bit color or lower to meet the byte size requirement.

- 1) To send an image to the device, press the **Configuration** tab.

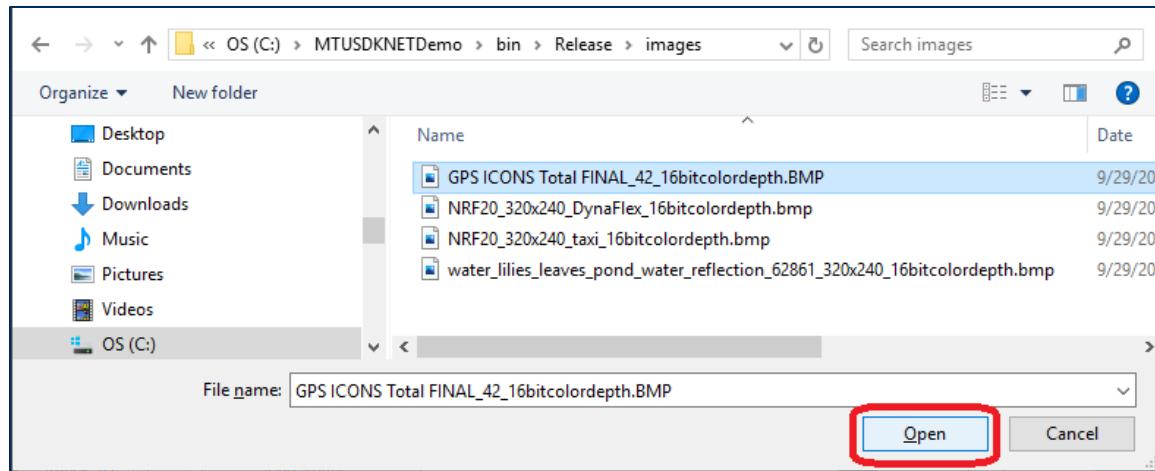


- 2) Select an ID number from the **Image ID** list. Press the **Send Image** button.

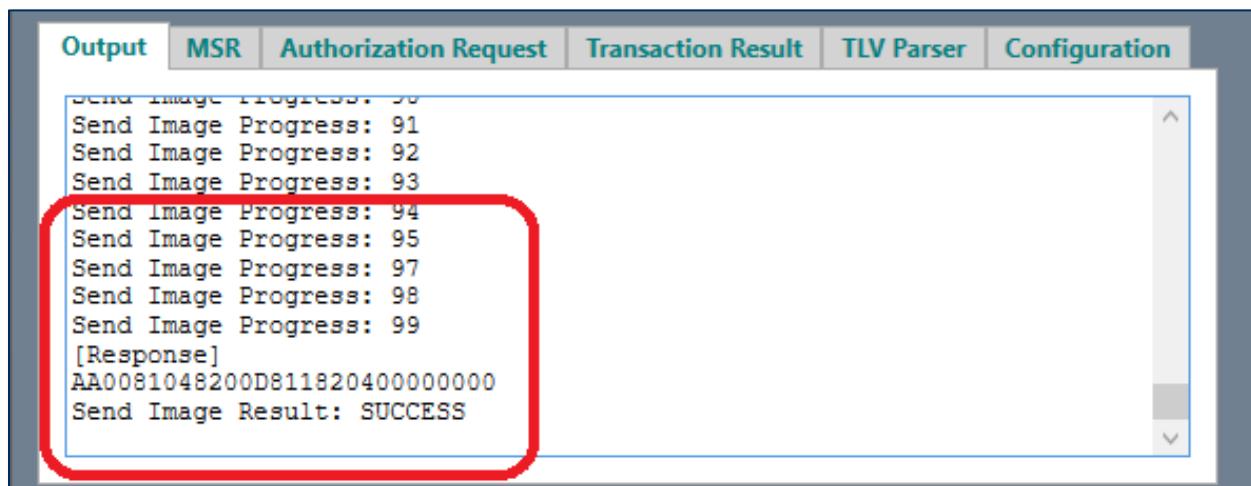


- 3) Navigate to an image bitmap file, select the file, then press the **Open** button.

4 - How to use Configuration



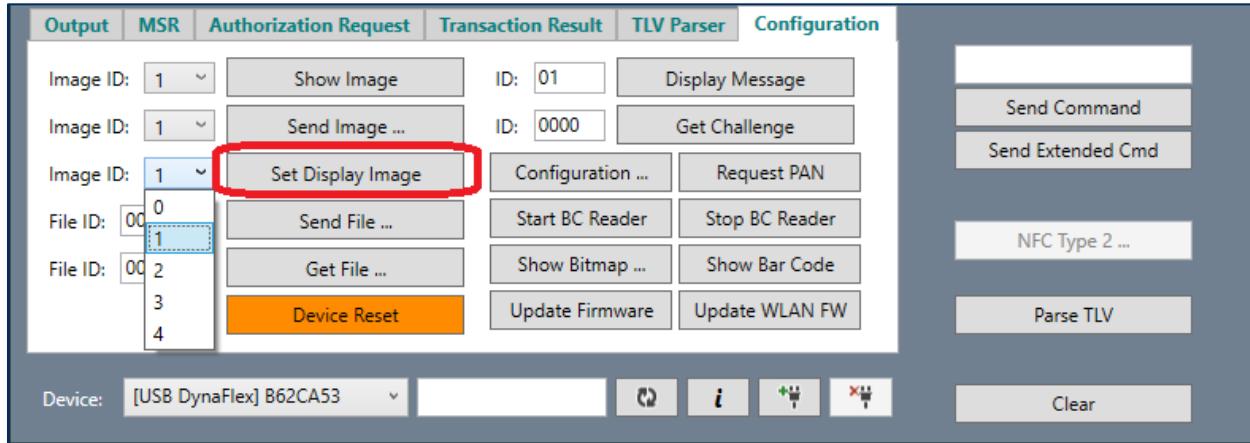
- 4) View the progress of sending an image by selecting the **Output** tab. When completed the result will be similar to what is shown below.



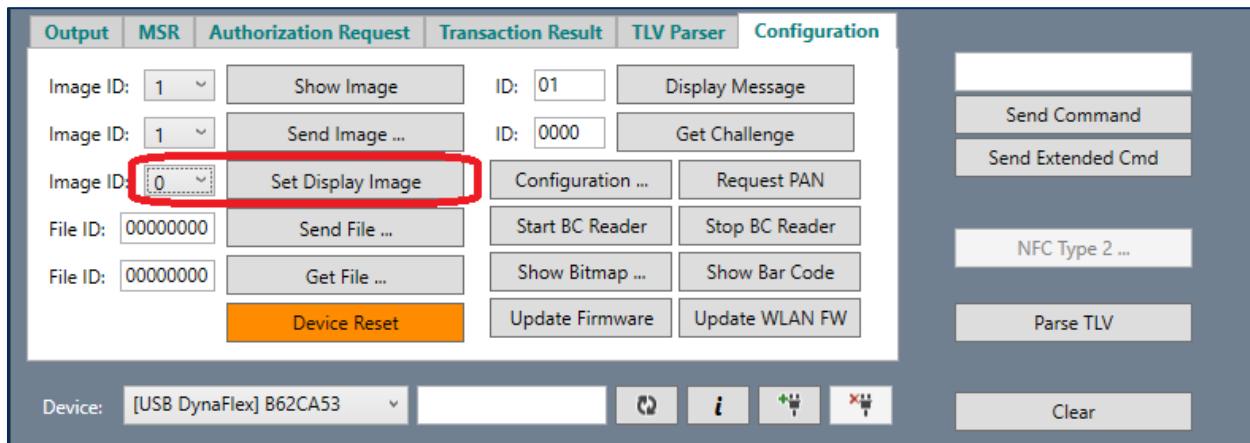
4 - How to use Configuration

4.2 Set Display Image

- To set which image is to replace the Welcome screen, press the **Configuration** tab, select an ID from the **Image ID** list, press the **Set Display Image** button, then press the **Device Reset** button.



- After the device resets, press the **Connect** button. The image will now be displayed on the device's idle screen.
- If the display image is set to an ID that was not loaded, the device will display the Welcome screen.
- To set the device back to the Welcome screen, select ID **0** from the **Image ID** list, press the **Set Display Image** button, then press the **Device Reset** button. After the reset, press the Connect button.

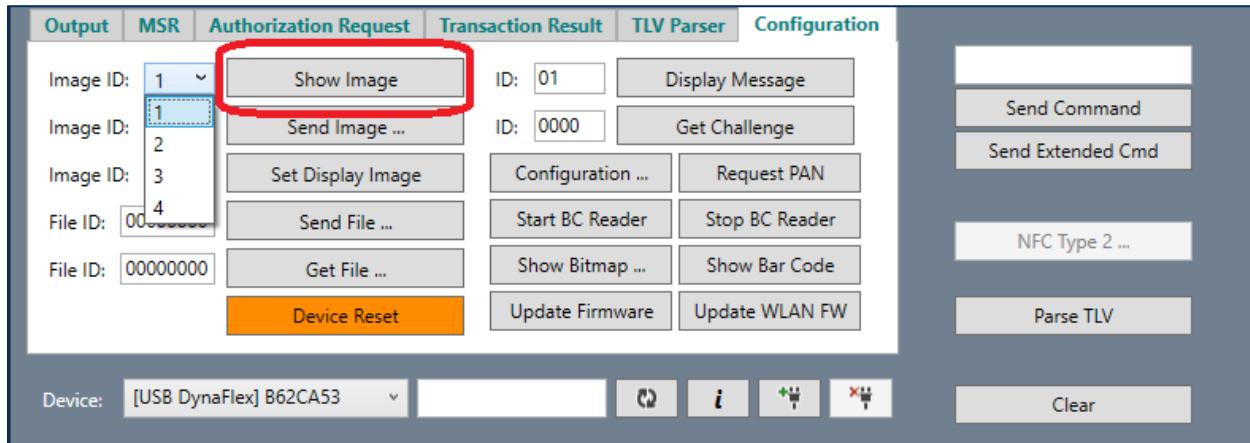


4 - How to use Configuration

4.3 Show Image

This section is for showing an image that already exists in a slot in the device.

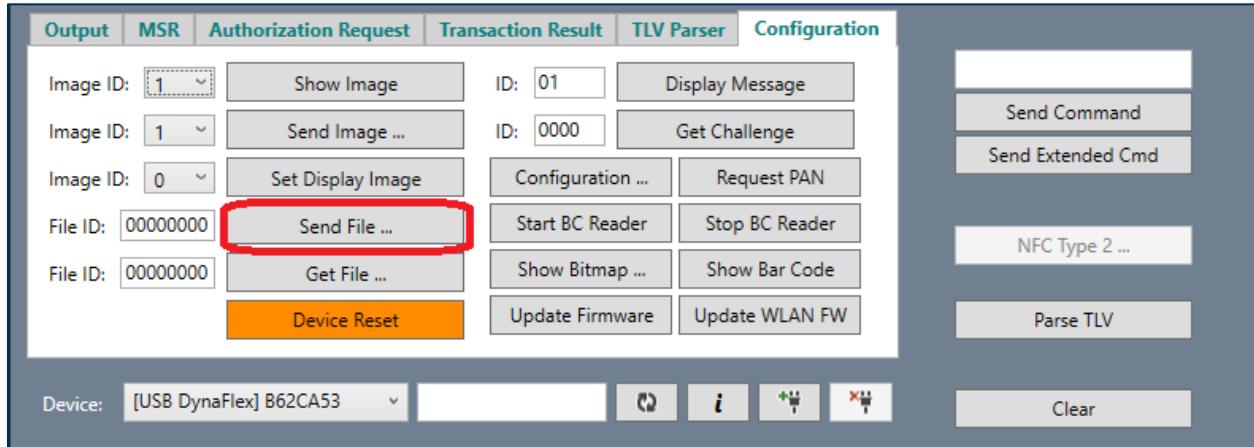
- 1) Select the **Configuration** tab, select the **Image ID** you want to display, then press the **Show Image** button. Please note that after the device is restarted, the idle image will show the Image ID under Set Display Image setting.



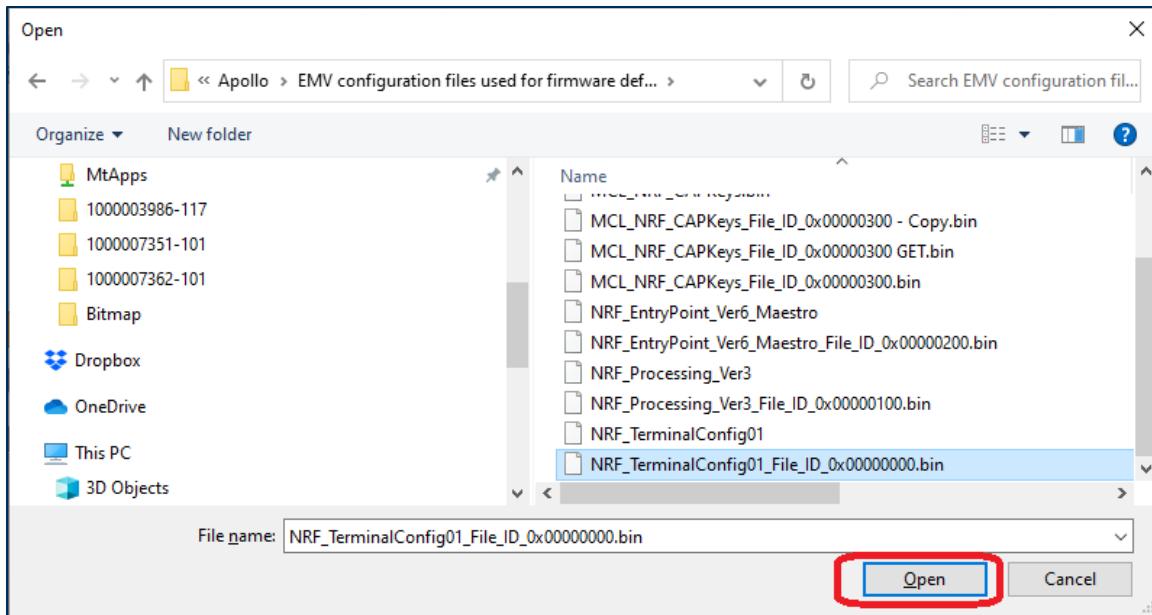
4 - How to use Configuration

4.4 Send File

- To send a configuration file to the device, select the **Configuration** tab, enter the **File ID**, and then press the **Send File** button.



- Select the file associated with that same file ID and press the **Open** button.



- The **Output** will show the result of the file sent to the device.

4 - How to use Configuration

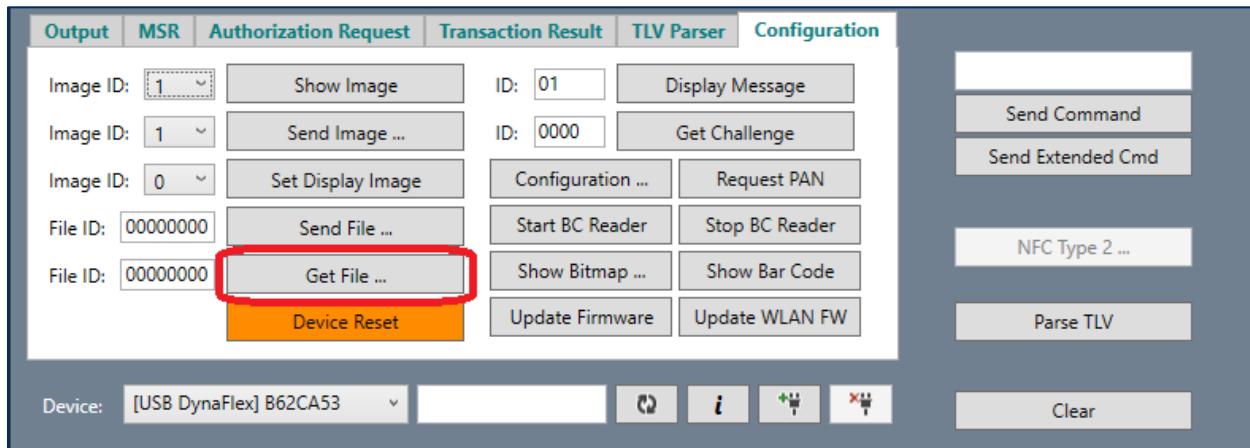
The screenshot shows a software application window with a tab bar at the top. The tabs are labeled: Output (highlighted with a red box), MSR, Authorization Request, Transaction Result, TLV Parser, and Configuration. Below the tabs is a scrollable log window containing the following text:

```
Send File Progress: 2
[Response]
AA0081048200D812820400000000
Send File Progress: 4
Send File Progress: 27
Send File Progress: 50
Send File Progress: 72
[Response]
AA0081048200D812820400000000
Send File Progress: 100
Send File Result: SUCCESS
```

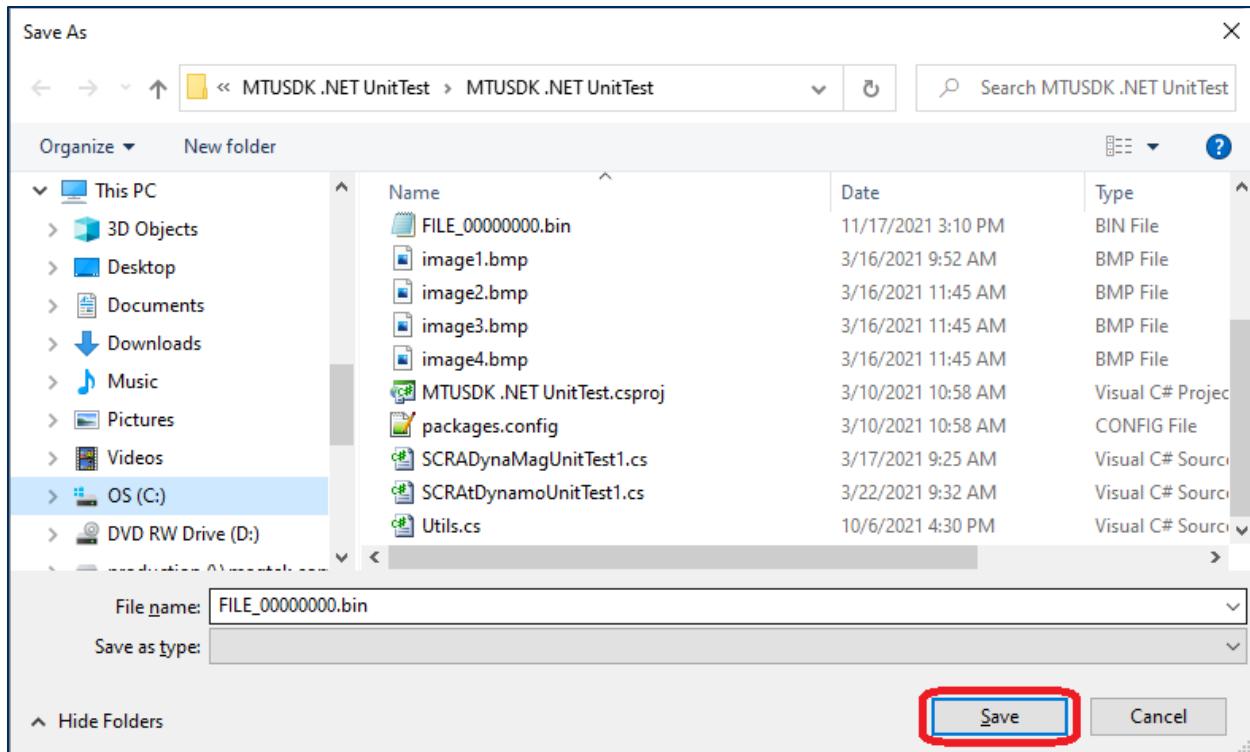
4 - How to use Configuration

4.5 Get File

- To get a configuration file from the device, select the **Configuration** tab, enter the **File ID** and then press the **Get File** button.



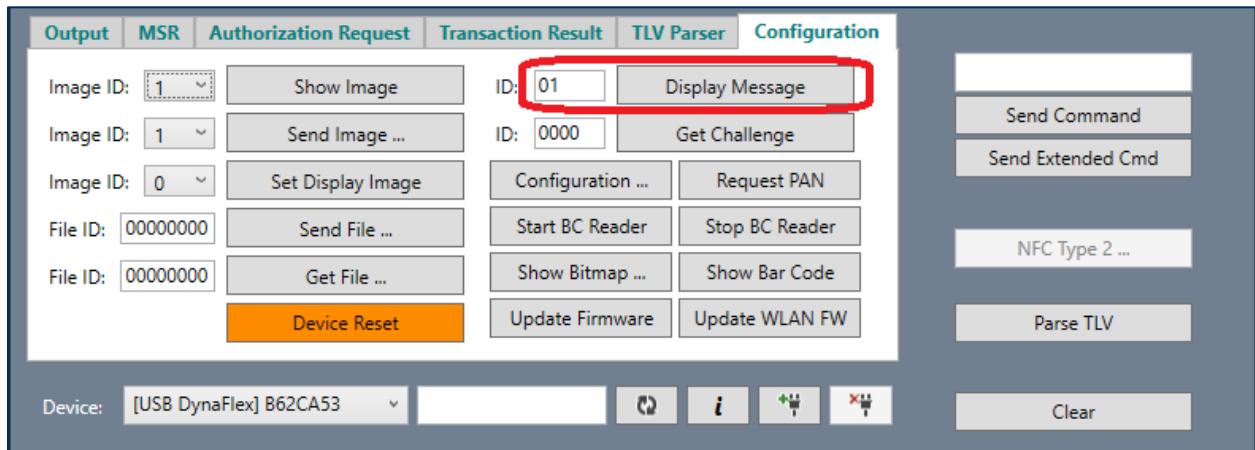
- Enter the desired file name and press the **Save** button.



4 - How to use Configuration

4.6 Display Message

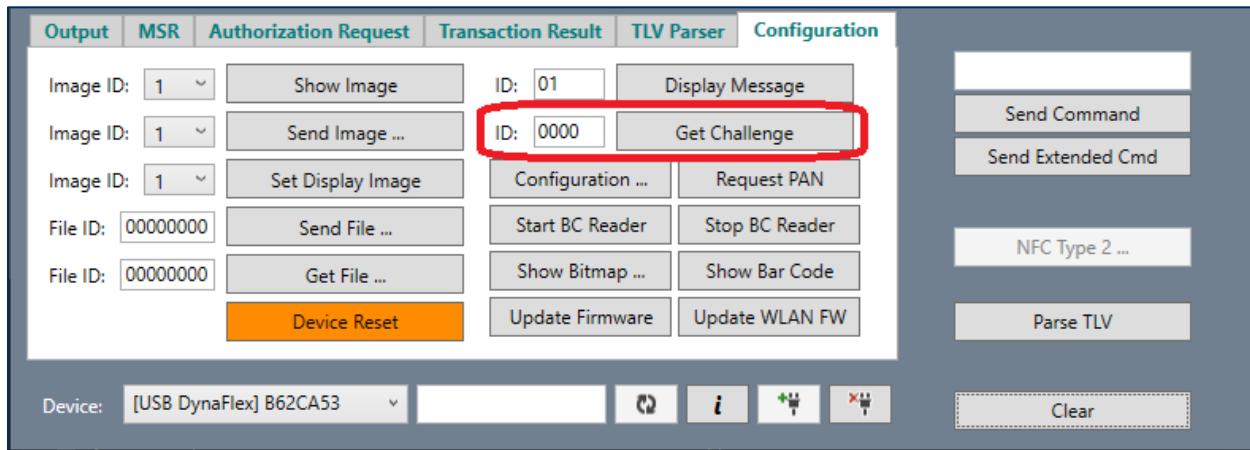
- 1) To display a message on the device screen, select the **Configuration** tab, enter the **ID** in hexadecimal format between 01 and 29, and then press the **Display Message** button.



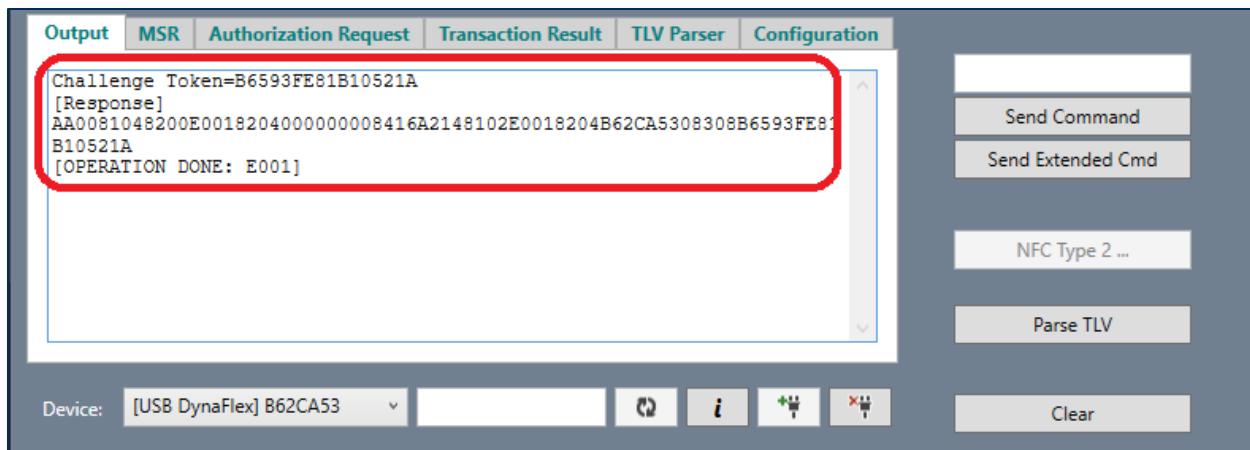
4 - How to use Configuration

4.7 Get Challenge

- To retrieve a challenge token from the device screen, select the **Configuration** tab, enter the **ID**, and then press the **Get Challenge** button.



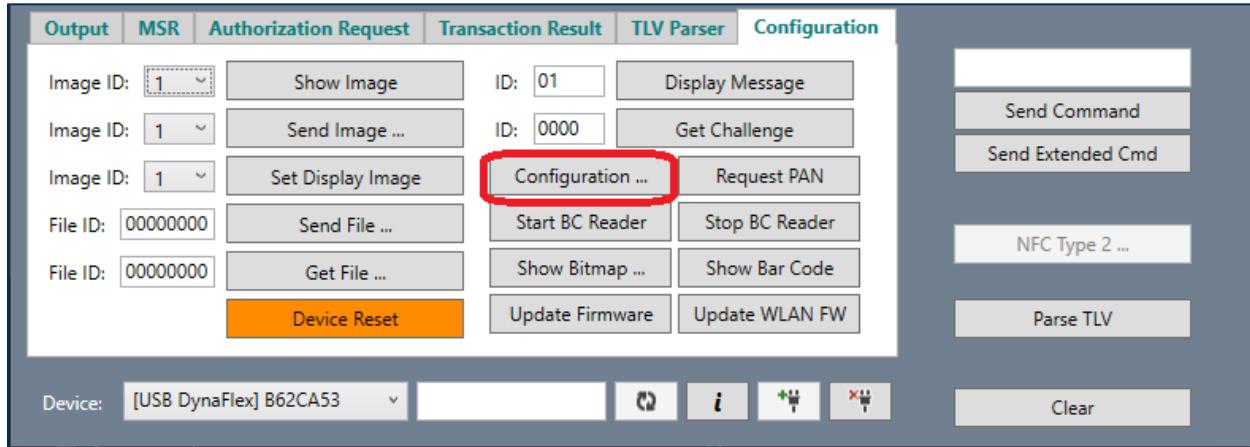
- Select the **Output** tab to view the response as shown below.



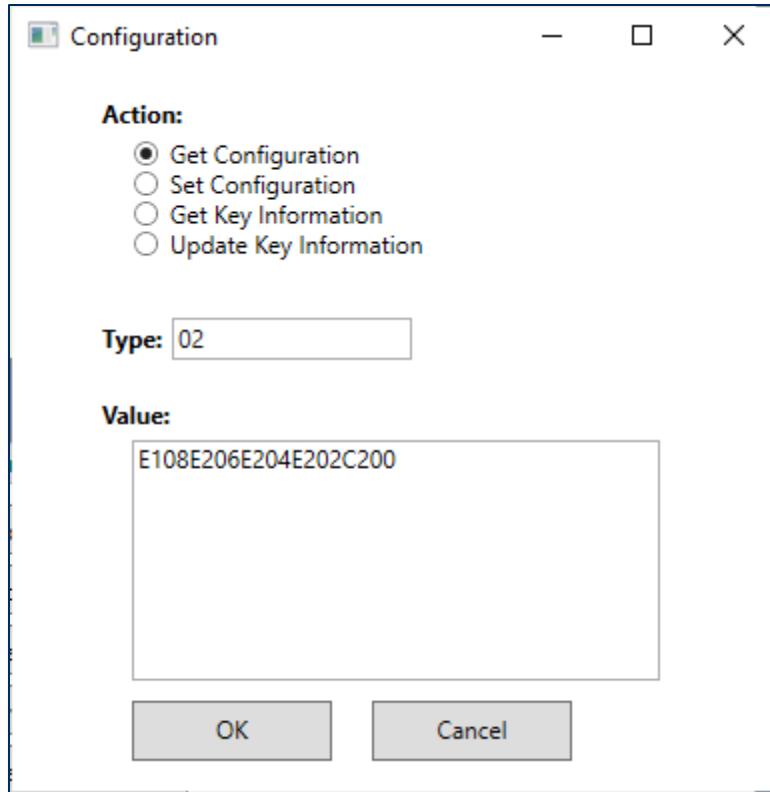
4 - How to use Configuration

4.8 Configuration

- To do configuration actions, select the **Configuration** tab, and press the **Configuration ...** button.

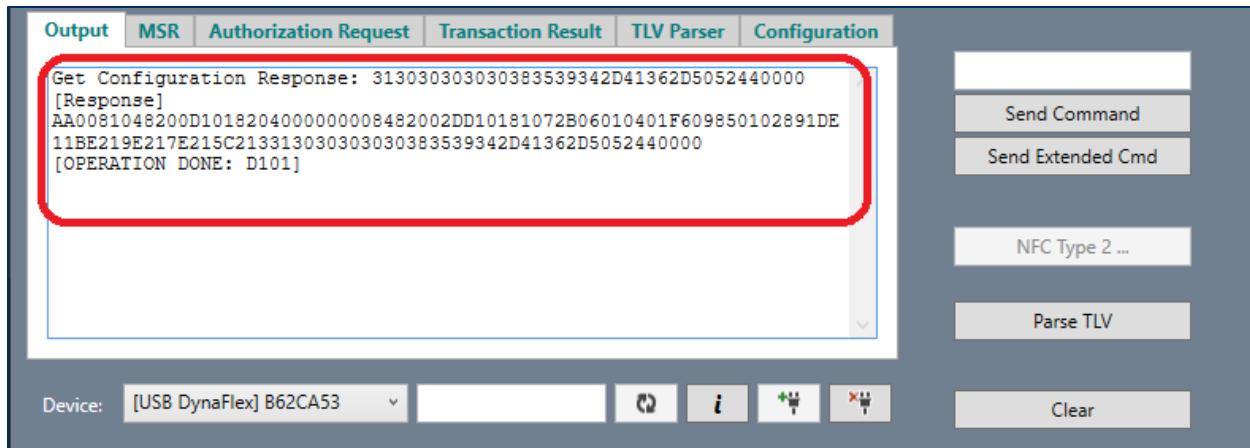


- Select an **Action**, enter the **Type**, enter the O.I.D. **Value**, and then press the **OK** button.



- Select the **Output** tab to view the response as shown below.

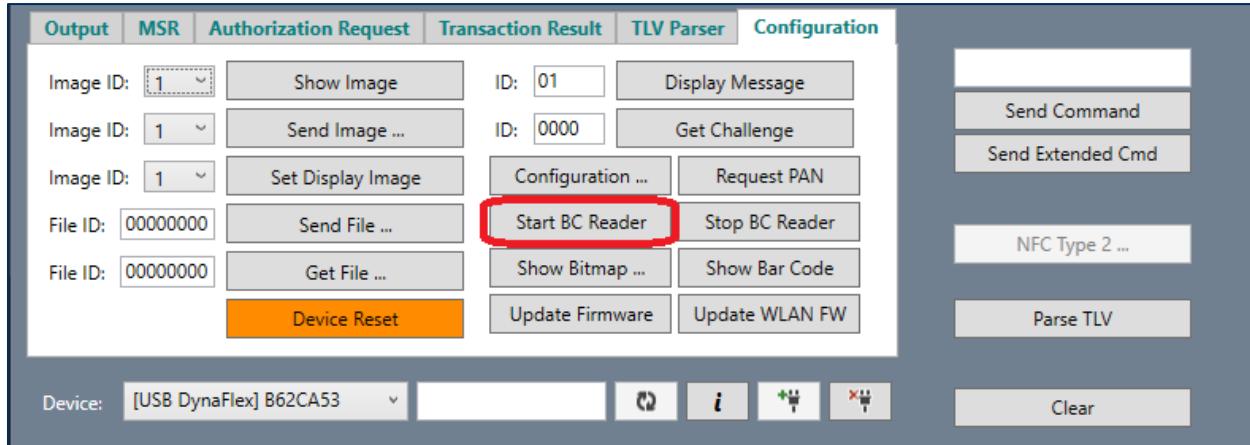
4 - How to use Configuration



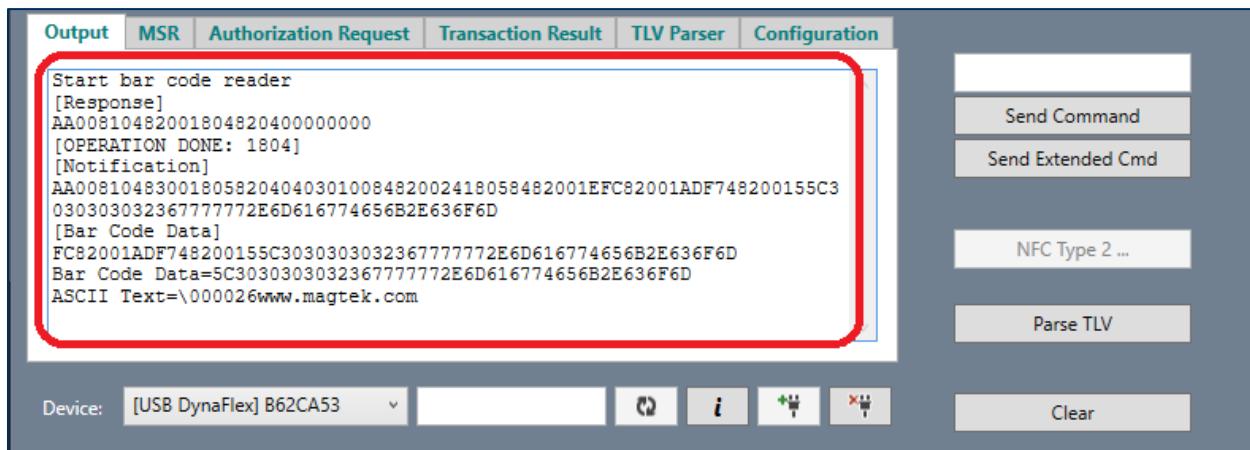
4 - How to use Configuration

4.9 Scan Barcode

- 1) Locate a barcode that can be accessible by the device such as a mobile app, screen, or print out.
- 2) To scan a barcode, select the **Configuration** tab, and press the **Start BC Reader** button.



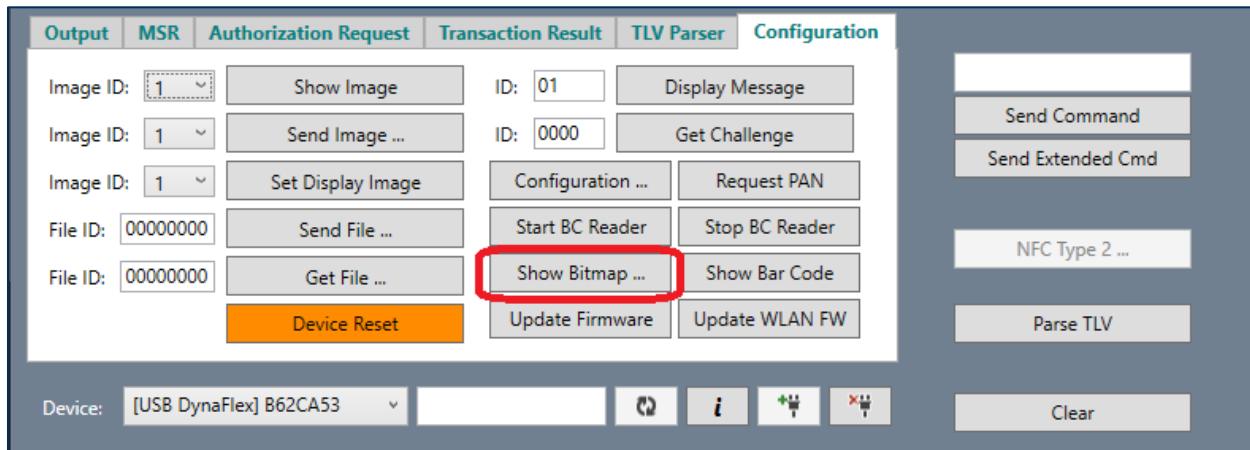
- 3) The BCR LED will turn on. Present a barcode near the device's BCR, which is located at the top center of the device.
- 4) The BCR LED will turn off after the BCR scan is complete.
Note, if the LED flickers but remains on, the scan is not complete. Slowly center the barcode. If centered, slowly move the barcode away from the device. The larger the barcode size, the further away it should be.
- 5) Select the **Output** tab to view the response as shown below.



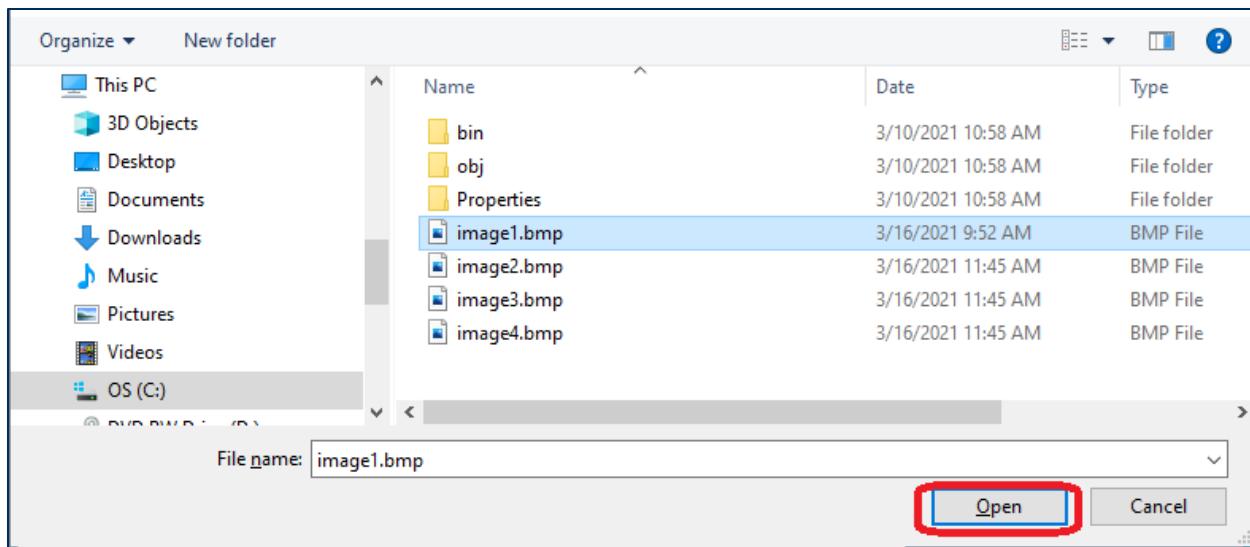
4 - How to use Configuration

4.10 Show Bitmap

- To show bitmaps not previously loaded on the device screen, select the **Configuration** tab, and press the **Show Bitmap** button.



- Select the bitmap image, and then press the **Open** button.

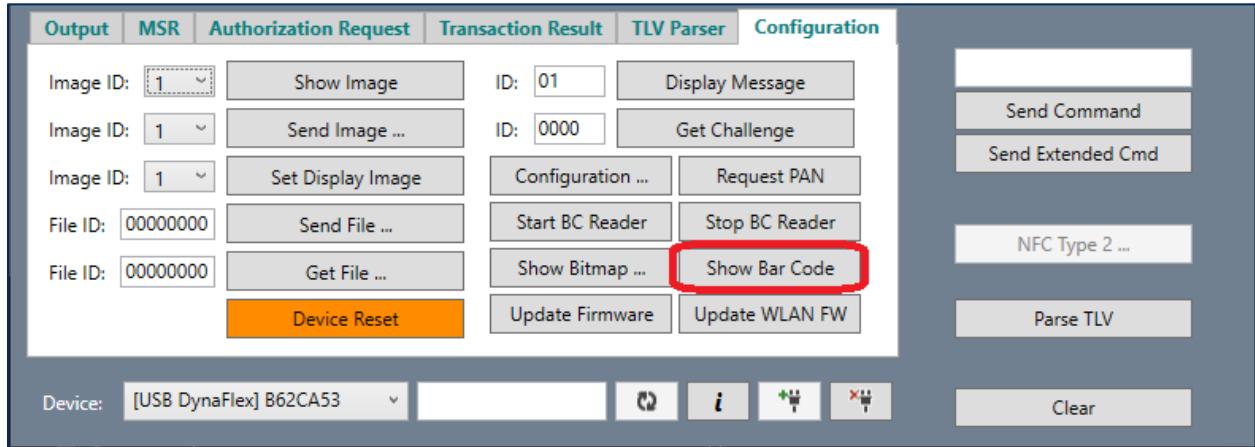


- The image will be displayed on the device's screen. This bitmap is not stored in the device.

4 - How to use Configuration

4.11 Show Barcode

- 1) To display a barcode on the device screen, select the **Configuration** tab, and press the **Show Barcode** button.

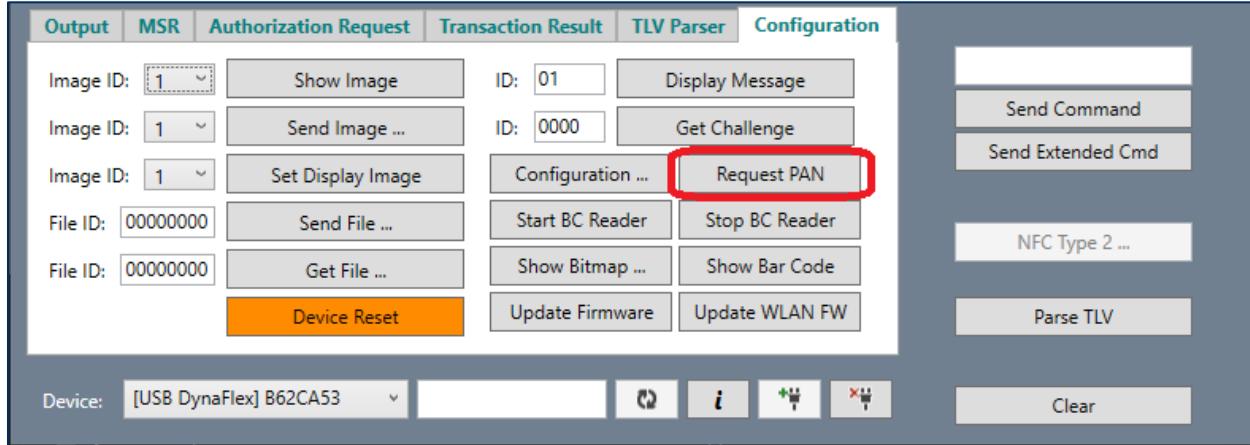


- 2) The barcode will be displayed on the device's screen. Scan the barcode with a barcode reader.

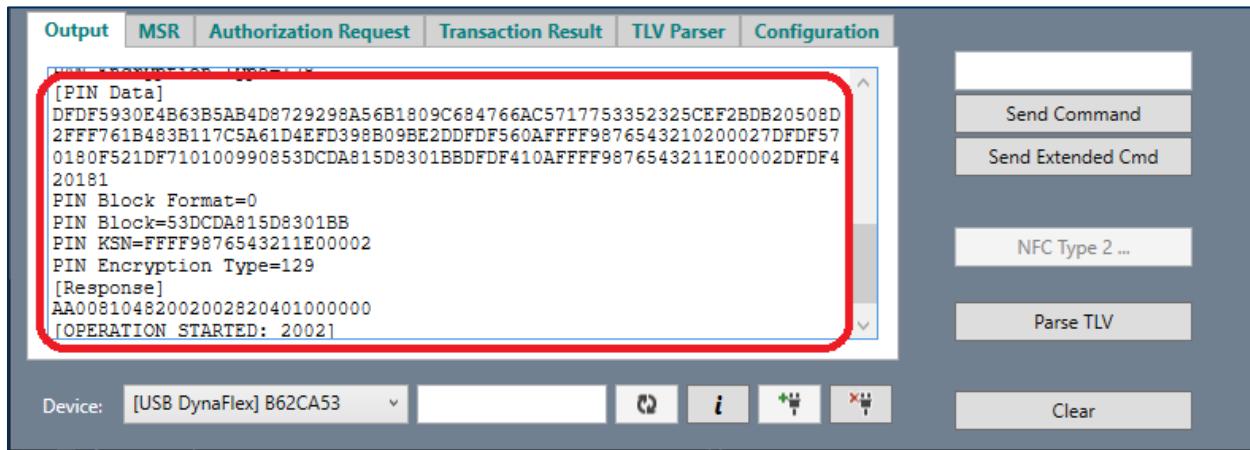
4 - How to use Configuration

4.12 Request PAN

- To request a PIN and Card, select the **Configuration** tab, and press the **Request PAN** button.



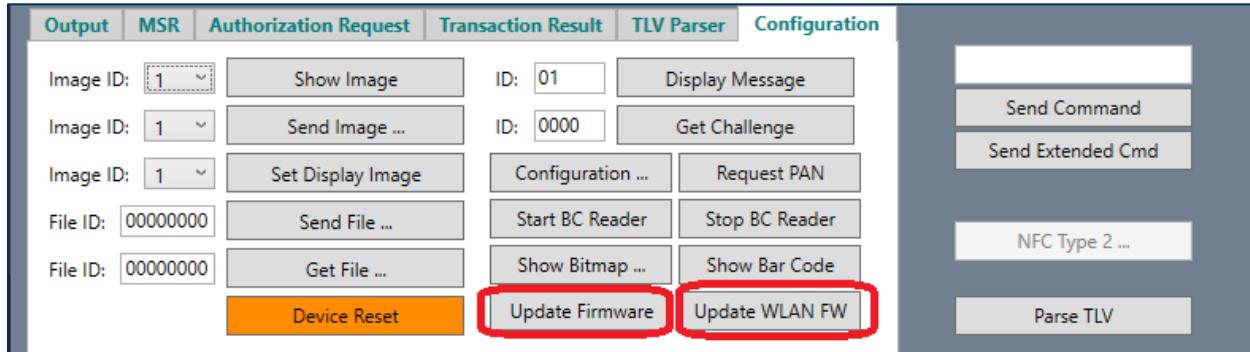
- Device will first request to present a card to capture the PAN data. Present a card.
- Now enter a PIN when prompted “Enter PIN”.
- Select the **Output** tab to view the response as shown below.



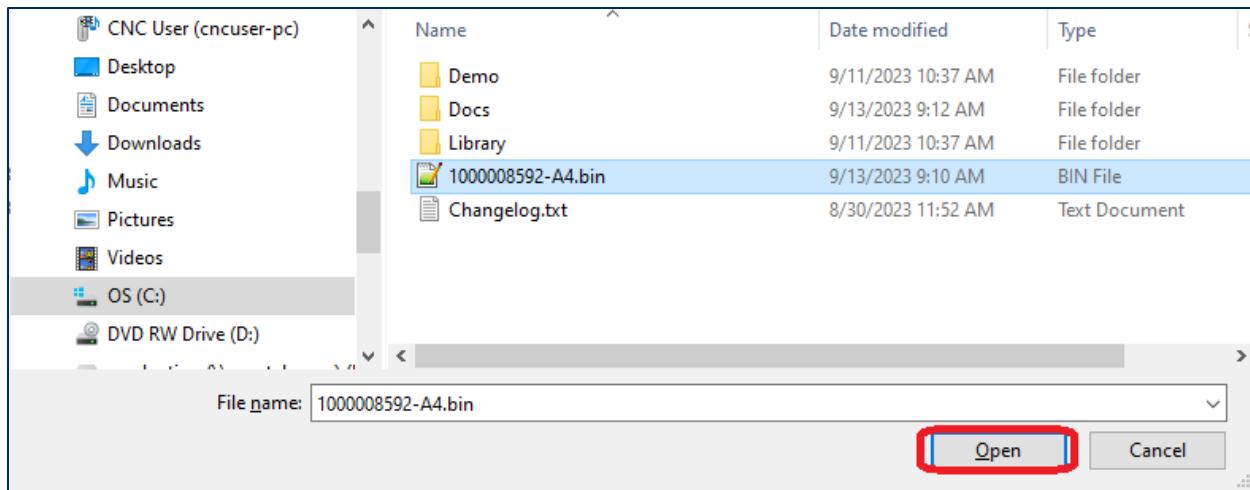
4 - How to use Configuration

4.13 Update Firmware

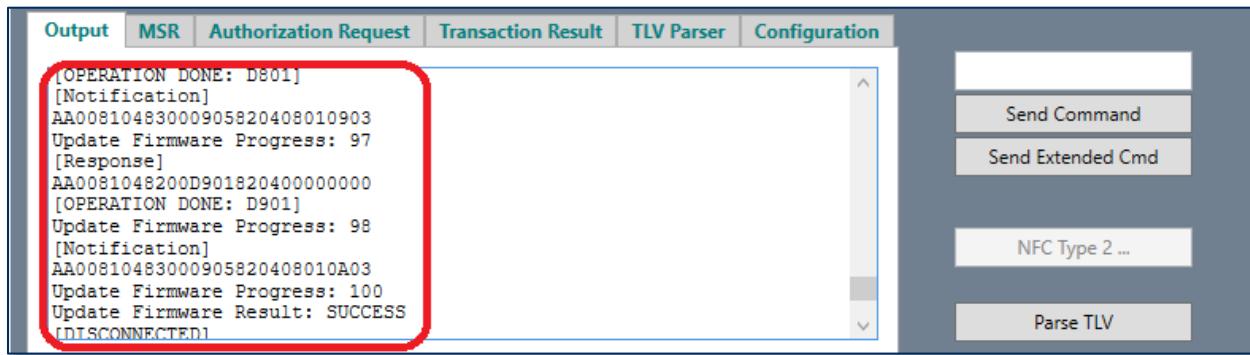
- To update the device firmware, press either the **Update Firmware** or **Update WLAN FW** button.



- Select the firmware file to update and press the **OK** button.



- The Output tab will show the progress of the update.



- DO NOT** power off or remove the device from the host pc during the update. After the update, the device will reset.

5 - Flexible UI Page

5 Flexible UI Page

The following section is for displaying Flexible User Interface (UI) pages.

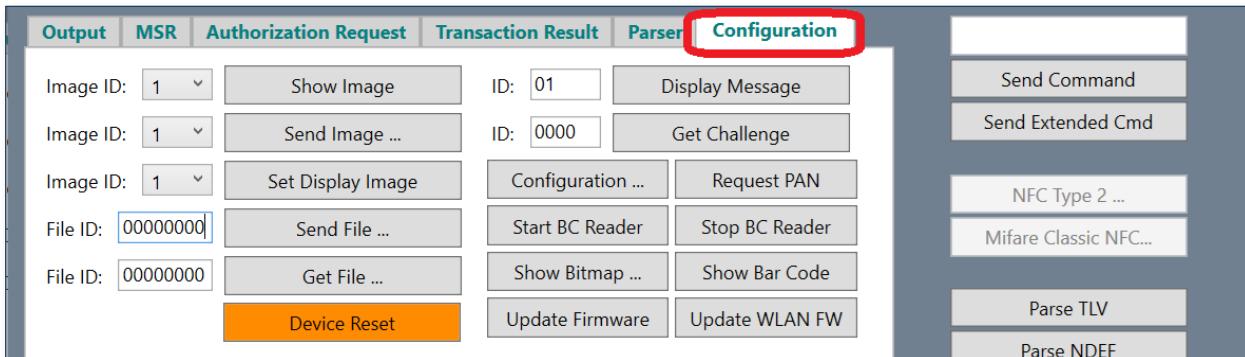
UI pages allow for interaction by selection of customized buttons, and display of images. UI pages are composed of Titles, Text lines, Buttons, Amount buttons, Images, and Functional buttons. Functional buttons are situated at the bottom of the screen. A host app sends the contents of: Text lines, Amount buttons, and Images, in real time to the device for display. However, for Titles, Buttons, and Functional buttons, the messages are pre-existing inside the device. Hence, a host app only sends the string ID number assigned to a specific text message. The ID and text messages are defined by a comma separated value (.csv) UI configuration file.

A customer may configure a UI configuration file, but ultimately it is signed at MagTek. The device will only accept a signed UI configuration file. Once signed, the file is converted into binary (BIN) format.

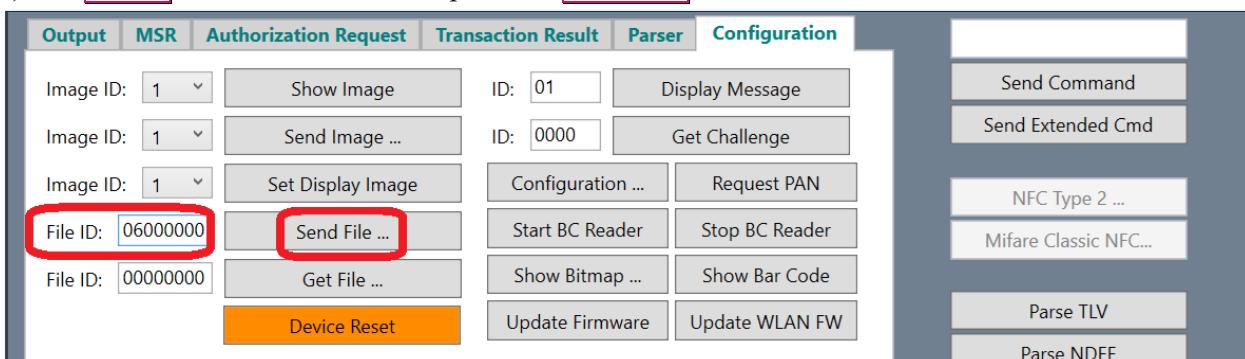
5.1 UI Configuration File

To load a UI Configuration file into the device, follow these steps.

- 1) Select the **Configuration** tab.

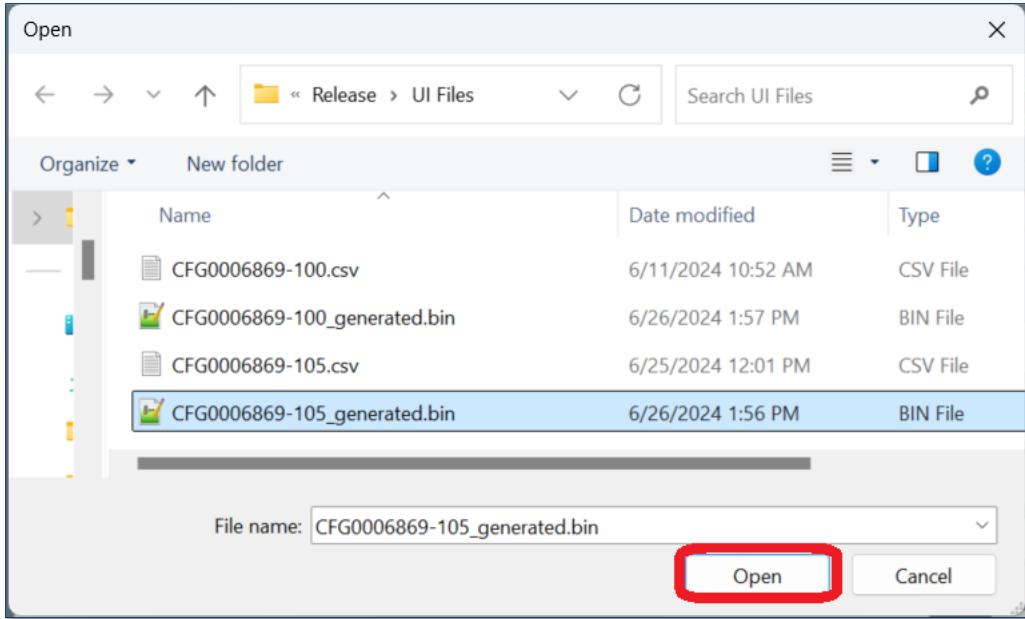


- 2) At **File ID**, enter **06000000** and press the **Send File** button.



- 3) Browse to and select a UI configuration **BIN** file.

5 - Flexible UI Page



- 4) See the progress by selecting the **Output** tab. On completion, the status will show **SUCCESS** similarly as below.

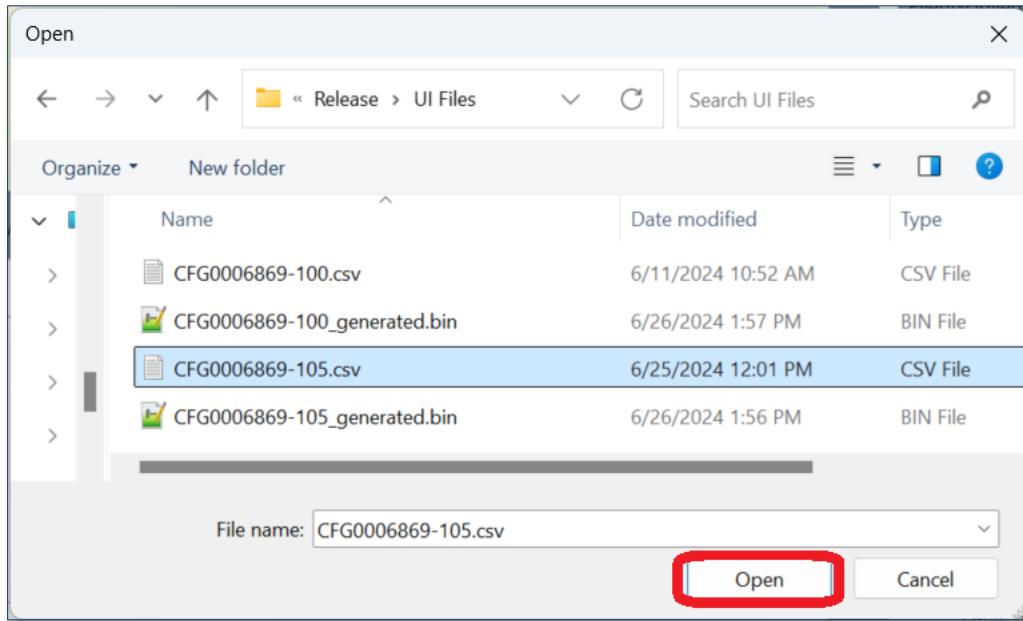
A screenshot of the software interface. The 'Output' tab is selected. In the main window, there is a log area showing file transfer progress: 'Send File Progress: 75', 'Send File Progress: 76', 'Send File Progress: 79', 'Send File Progress: 82', 'Send File Progress: 85', 'Send File Progress: 88', 'Send File Progress: 91', '[Response]', 'AA0081048200D812820400000000', '[OPERATION DONE: D812]', 'Send File Progress: 100', and 'Send File Result: SUCCESS'. To the right, there are several buttons: 'Send Command', 'Send Extended Cmd', 'NFC Type 2 ...', 'Mifare Classic NFC...', 'Parse TLV', and 'Parse NDEF'. A red box highlights the 'Output' tab, and another red box highlights the log area.

- 5) Select a matching UI string file by pressing the **Select UI String File** button.

A screenshot of the software interface. The 'Output' tab is selected. A red box highlights the 'Select UI String File' button, which is represented by a gear icon. To the right, there are several buttons: 'Cancel', 'Send Command', 'Send Extended Cmd', 'NFC Type 2 ...', 'Mifare Classic NFC...', 'Parse TLV', 'Parse NDEF', and 'Clear'. At the bottom, there is a 'Device:' dropdown set to '[USB DynaFlex] B54776E' and some other control buttons.

5 - Flexible UI Page

- 6) Browse to and select a **CSV** file. The part number and revision should match the currently loaded BIN file but ends in extension “.csv”.

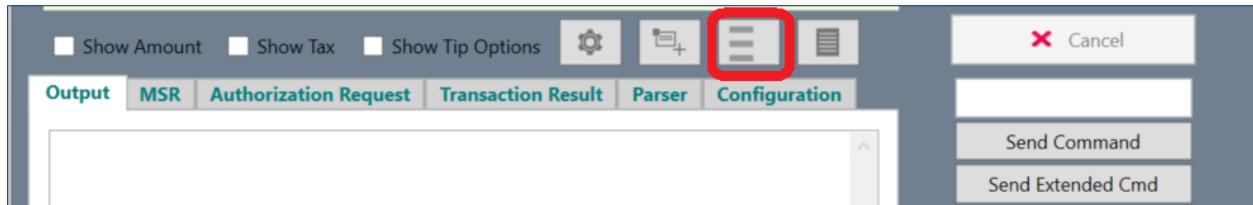


- 7) Now that the matching CSV file is imported into the app, the appropriate set of string IDs and text messages may be selected during the Flexible UI page instructions that follow.

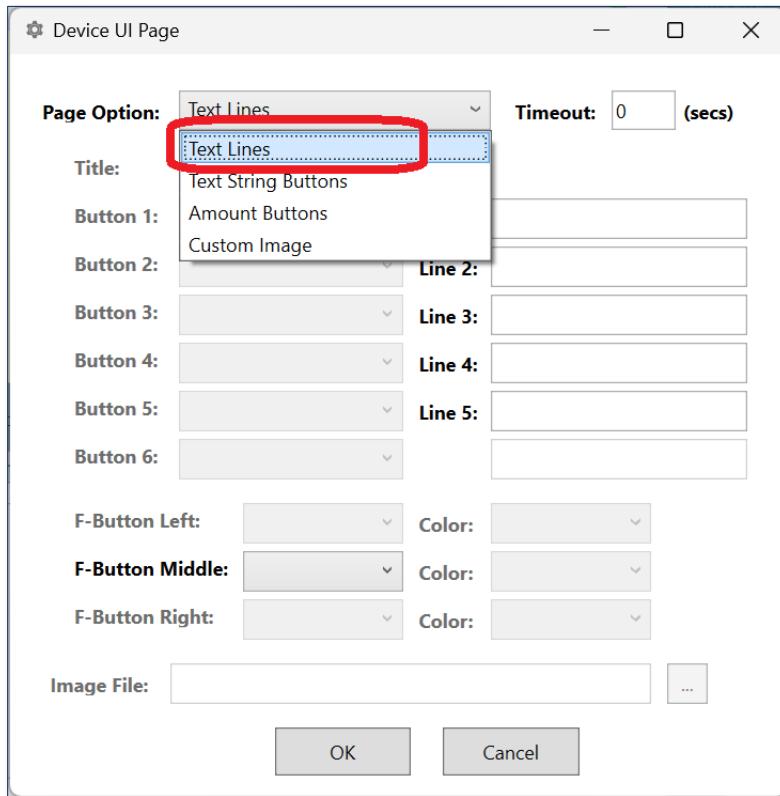
5 - Flexible UI Page

5.2 Text Page

- 1) To display a multi Text line UI page on the device's screen, press the **Customize Device UI Page** button.

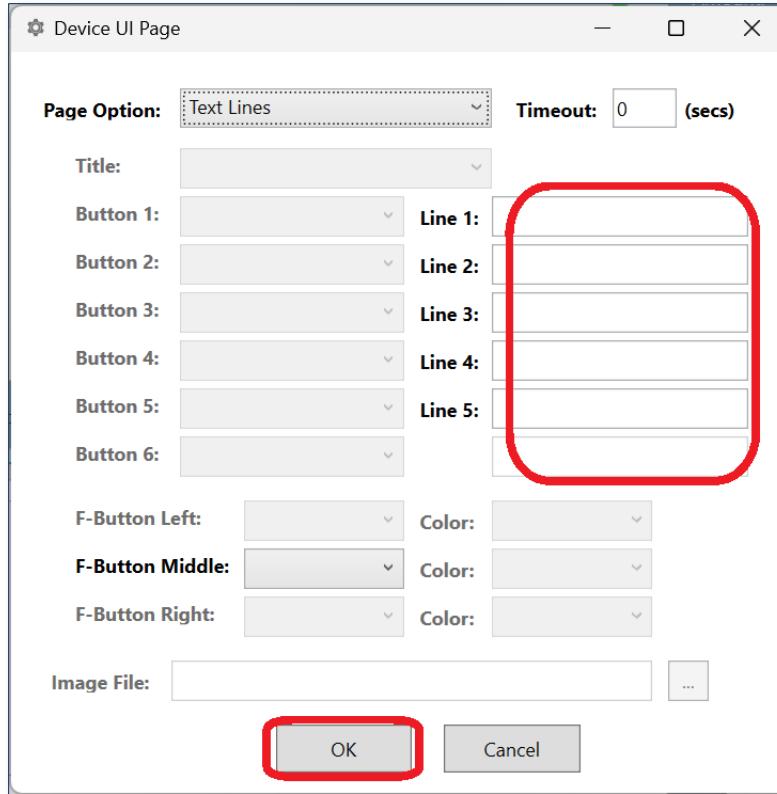


- 2) At **Page Option** list, select **Text Lines**.

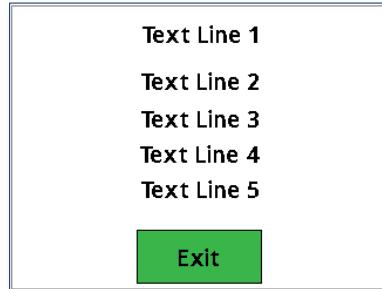


- 3) Enter from 1 to 5 lines of text to be displayed in each text box, and then press the **OK** button. Only 0 seconds (no timeout) is currently supported.

5 - Flexible UI Page



- 4) The UI page will be shown on the device's screen similarly as below.



- 5) Each time a UI button is pressed on the screen, the device sends a notification similarly as shown below. Functional Middle button reports as 2 similarly as shown below. Text lines are not reported.

A screenshot of the "Output" tab in the MagTek Universal SDK. The left pane shows a log of notifications:

```
[Notification]
AA00810483001803820401020200
Touchscreen Functional Button Selected: 2
[Notification]
AA00810483001803820401020200
Touchscreen Functional Button Selected: 2
```

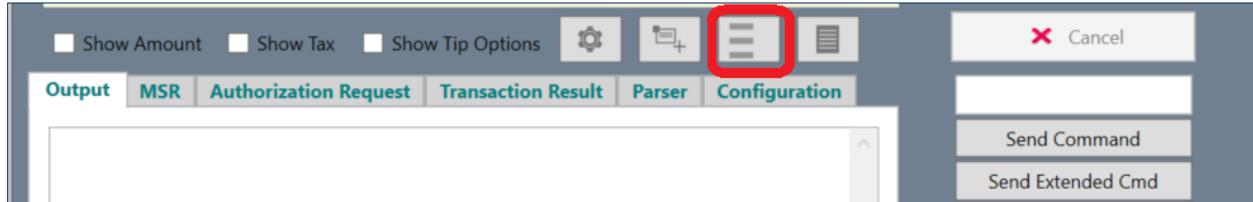
The right pane contains buttons for interacting with the device:

- Send Command
- Send Extended Cmd
- NFC Type 2 ...
- Mifare Classic NFC...

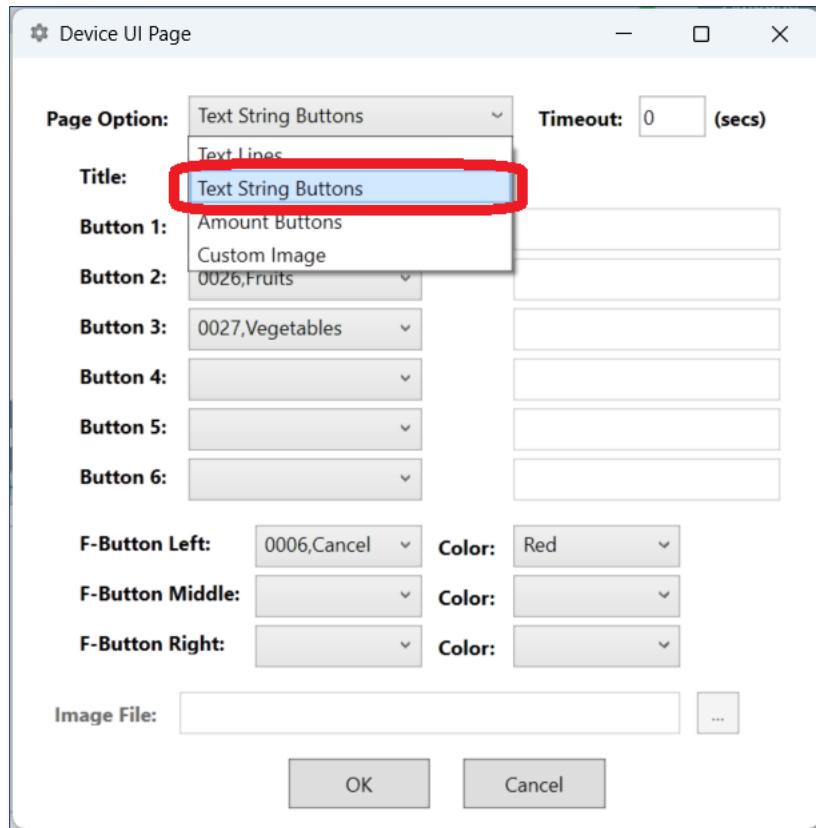
5 - Flexible UI Page

5.3 Buttons Page

- 1) To display a Buttons UI page on the device's screen, press the **Customize Device UI Page** button.



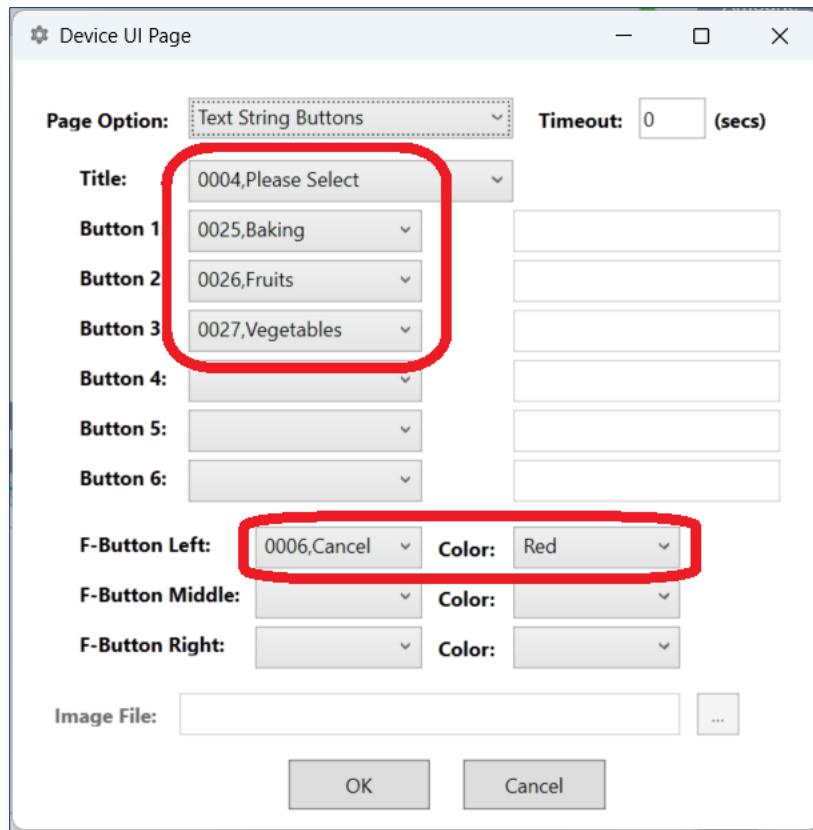
- 2) At **Page Option** list, select **Text String Buttons**.



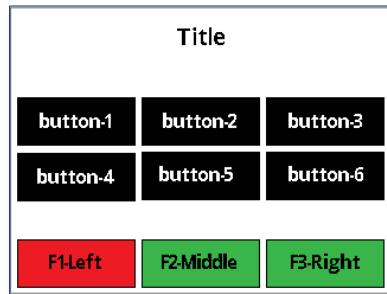
5 - Flexible UI Page

- 3) Select a message for **Title** and **Buttons**. The actual string IDs are referenced alongside each text string. For Functional buttons **F-Button**, select a message and a color of the button.

After making selections, press the **OK** button.



- 4) The UI page will be shown on the device's screen similarly as below.



- 5) Each time a UI button is pressed on the screen, the device sends a notification similarly as shown below.

The screenshot shows the 'Output' tab of the MagTek Universal SDK. The left pane displays log entries:

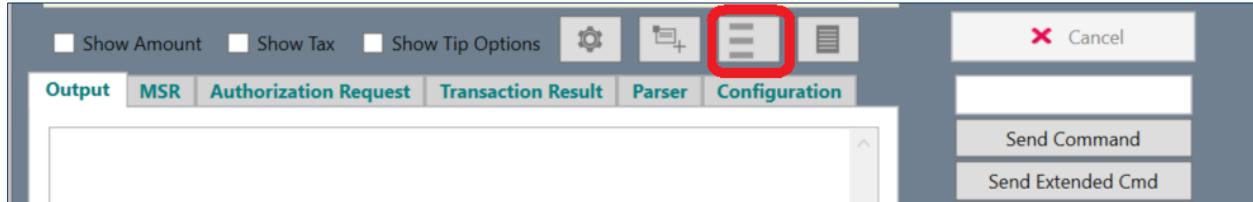
```
[Notification]
AA00810483001803820401030100
Touchscreen Text String Button Selected: 1
[Notification]
AA00810483001803820401020100
Touchscreen Functional Button Selected: 1
```

The right pane contains buttons for sending commands and an NFC Type 2 ... button.

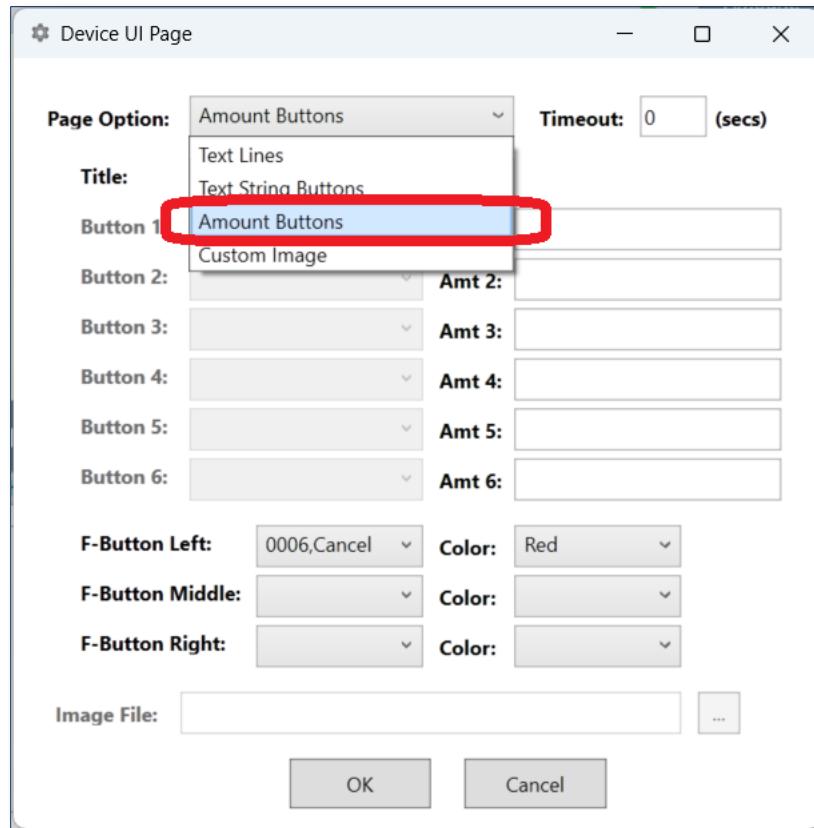
5 - Flexible UI Page

5.4 Amount Page

- 1) To display an Amount UI page on the device's screen, press the **Customize Device UI Page** button.



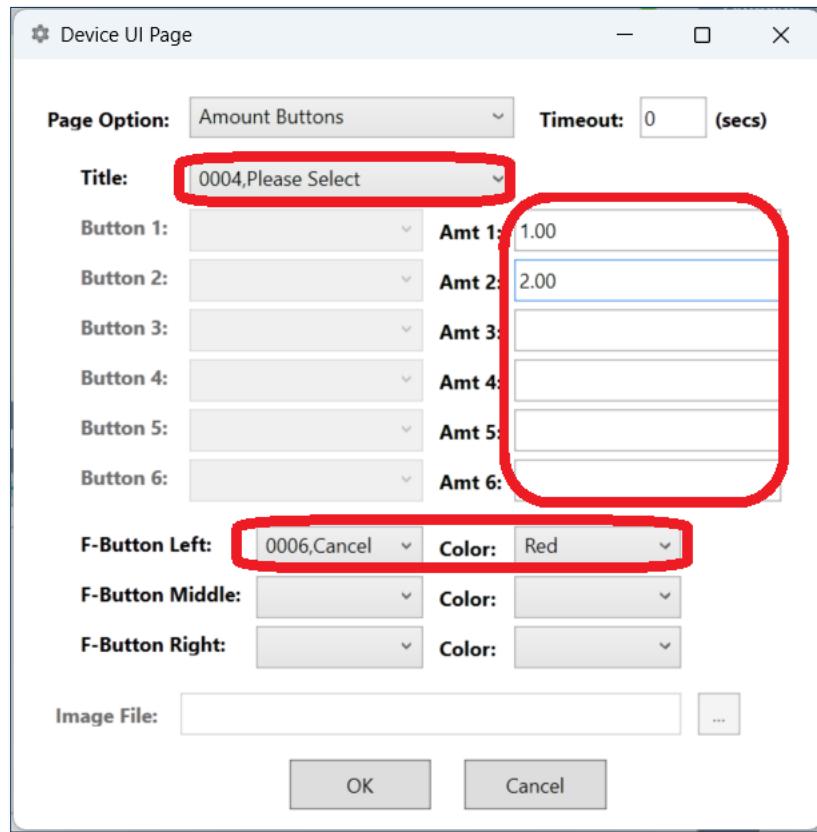
- 2) At **Page Option** list, select **Amount Buttons**.



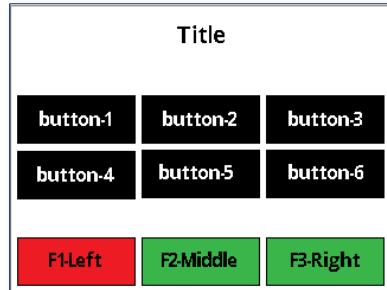
5 - Flexible UI Page

- 3) Select a message for **Title** and enter the dollar value in each text box for **Amt**. The actual string IDs are referenced alongside each text string. For Functional buttons **F-Button**, select a message and a color of the button.

After selections, press the **OK** button.

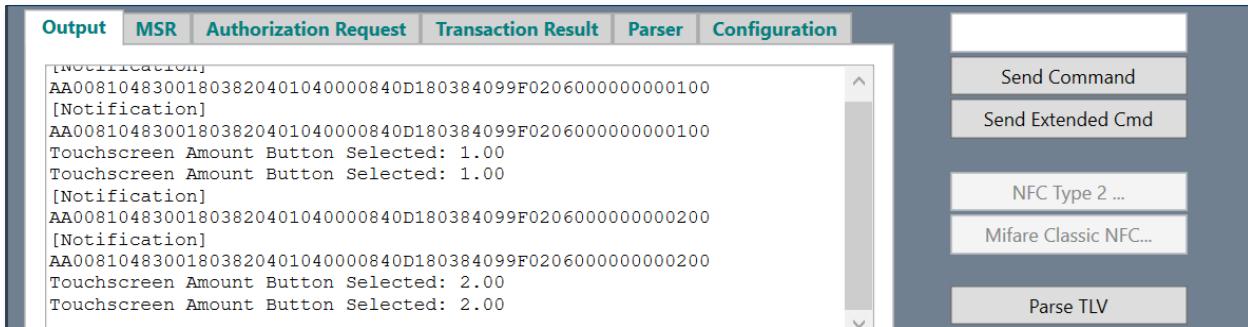


- 4) The UI page will be shown on the device's screen similarly as below.



- 5) Each time a UI button is pressed on the screen, the device sends a notification similarly as shown below. Amount buttons report a value.

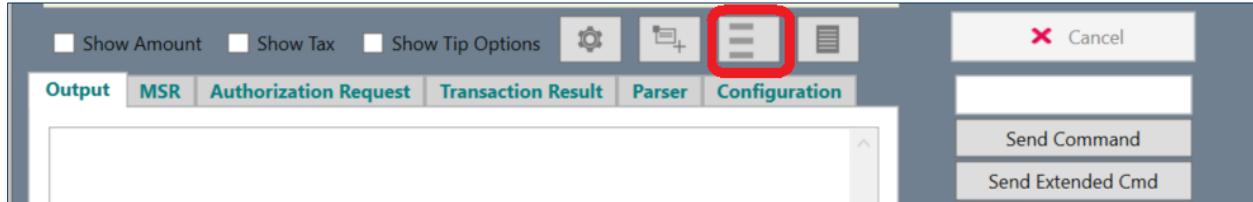
5 - Flexible UI Page



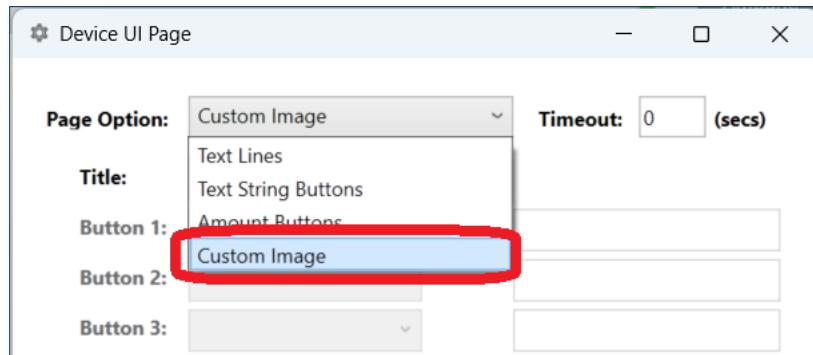
5 - Flexible UI Page

5.5 Image Page

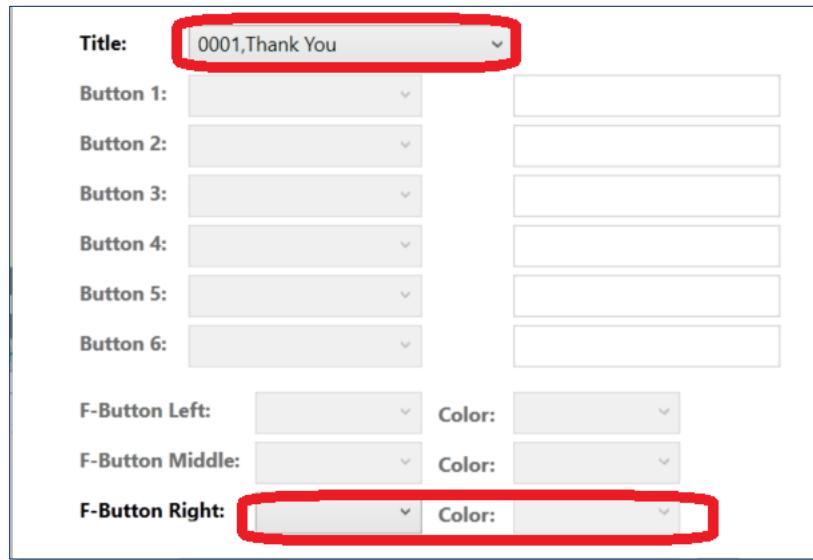
- 1) To display an Image UI page on the device's screen, press the **Customize Device UI Page** button.



- 2) At **Page Option** list, select **Custom Image**.

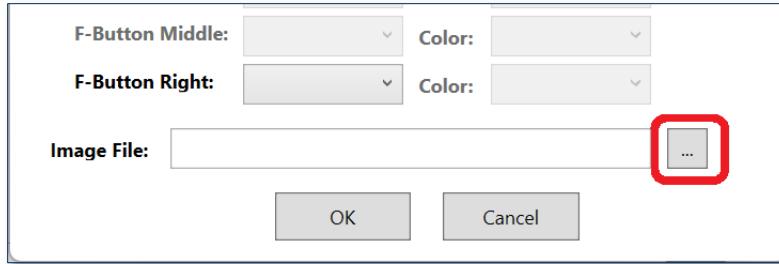


- 3) Select a **Title** and the **F-Button** option.

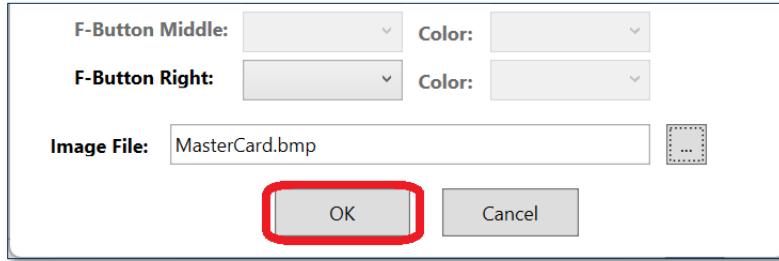


- 4) Press **...** to browse for the BMP image file.

5 - Flexible UI Page



- 5) After an image file is chosen, press the **OK** button.



- 6) The UI page will be shown on the device's screen similarly as below.



- 7) Each time a UI button is pressed on the screen, the device sends a notification similarly as shown below. The Functional Right button reports as 3.

A screenshot of the MagTek Universal SDK software interface. The top menu bar includes "Output", "MSR", "Authorization Request", "Transaction Result", "Parser", "Configuration", and "Send Command". The "Output" tab is selected, showing a log window with the following text:
[Notification]
AA00810483001803820401020300
[Notification]
AA00810483001803820401020300
Touchscreen Functional Button Selected: 3
Touchscreen Functional Button Selected: 3

The right side of the interface features a toolbar with several buttons:
Send Command
Send Extended Cmd
NFC Type 2 ...
Mifare Classic NFC...
Parse TLV