

# MagneFlex Browser

## **Magensa Services Developer Tool Installation and Operation Manual**

**May 2025**

**Manual Part Number:**

**D998200177-501**

**REGISTERED TO ISO 9001:2015**

# Magensa Services Developer Tool - MagneFlex Browser

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## Magensa Services Developer Tool - MagneFlex Browser

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**Table 0.1 - Revisions**

Rev Number	Date	Notes
10	May 2, 2017	Initial Release
20	July 8, 2017	Added screen showing favorites and pop-up management
30	Jan 22, 2018	Added Android App
40	Oct 9, 2020	Updated Appendix A Updated with MF 2.0 (Windows) screens and some other organization for consistency
50	August 2021	Added support for iDynamo 6 via USB Reader. Updated URL for MagneFlex Sample Code Demo
500	July 15, 2024	Added support for DynaFlex II PED, DynaFlex II Go, DynaProx for iOS (section 3.2.2.1 and Appendix A). Added support for DynaFlex II PED WLAN (section 3.3.2.1 and Appendix A). Added reference to document D998200507 MTMagneFlexLibJS For MagneFlex Browser Programmer's Manual ( Java Script ) (Section 4). Added MICRSafe to supported readers (Section 6 Appendix A).
501	May 22, 2025	Added requestMagneFlexFeature to hide the toolbar (Section 4.1.8).

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### 1 Introduction

**MagneFlex Browser** is a full-function HTML browser application for Windows, iOS, and Android. It is integrated with driver applications that allow the control of a MagTek payment card Reader from an HTML over HTTP(S) context. Integrators can build an HTML Application, such as a web-based POS Application, that can interact with MagTek Readers through the MagneFlex Browser to collect data from magnetic stripe, contact chip, or contactless (NFC) cards for the purpose of processing a payment. MagneFlex Browser can be distributed by the integrator to its end users, along with MagTek Readers, to deploy a full-function POS system.

## 2 System Architecture

MagneFlex Browser employs an architecture that contemplates the following elements of a payment system:

- **Reader** – A supported MagTek payment card Reader. See Appendix A or a MagTek sales representative for the current list.
- **User Device** – The computer system that is connected to the Reader. The User Device is also where the MagneFlex Browser application is installed. Supported operating systems include Windows (version 7 or later), Apple iOS, and Android. Not all Readers can be supported by all operating systems. Please see a MagTek sales representative for further details.
- **HTML Application** – The application, provided by the integrator of MagneFlex Browser that will communicate with the Browser to control and obtain data from the MagTek Reader. This is often a POS Application for processing payment transactions but is not limited to this use. MagTek Readers can be used for many other purposes, including multi-factor authentication, facilities access, closed-loop loyalty and payment applications, etc. Magensa, MagTek's payment processing subsidiary, has a wide variety of services that can be used to process data from the Reader downstream to payment processors or other endpoints, while maintaining the point-to-point encryption (MagneSafe) provided by MagTek Readers. Please see a MagTek sales representative or [www.magensa.net](http://www.magensa.net) for more details.
- **MagneFlex Browser** – A full-function HTML browser application, for Windows, Apple iOS, and Android, that is integrated with driver applications that allow the control of a set of MagTek payment card Readers from an HTML over HTTP(S) context.

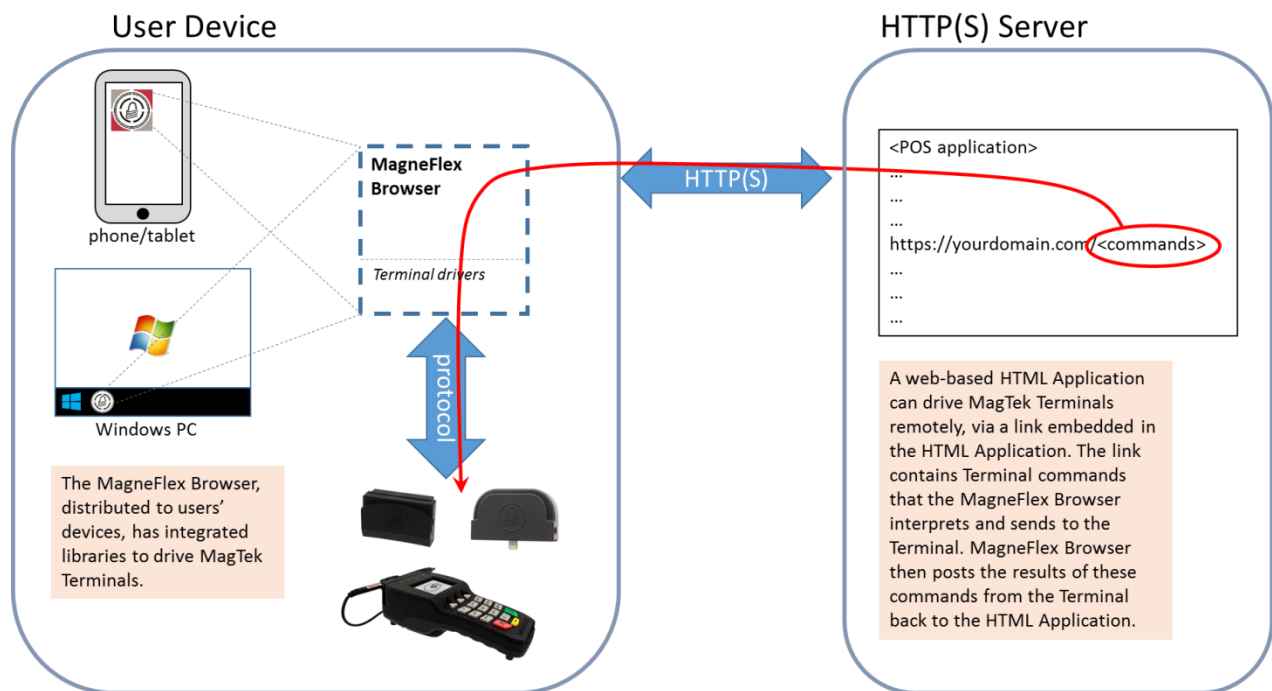


Figure A: Diagram of MagneFlex Browser

### 3 Browser Functions

The MagneFlex Browser includes all the normal functions found in popular HTML browsers. Additional features have been added to assist in managing Readers connected to the User's Device. The following section outlines the major features of MagneFlex Browser by operating system.

#### 3.1 Windows

Navigation controls are common with standard browsers. Settings are also common, except for the type of Reader connected. The MagneFlex Browser may be customized by the HTML application developer, including buttons and trim colors. Please contact a MagTek sales representative for further details.

The main menu for the Windows version of the MagneFlex Browser can be accessed by clicking on the vertical ellipsis or kebab menu (:) at the top right of the Browser window.

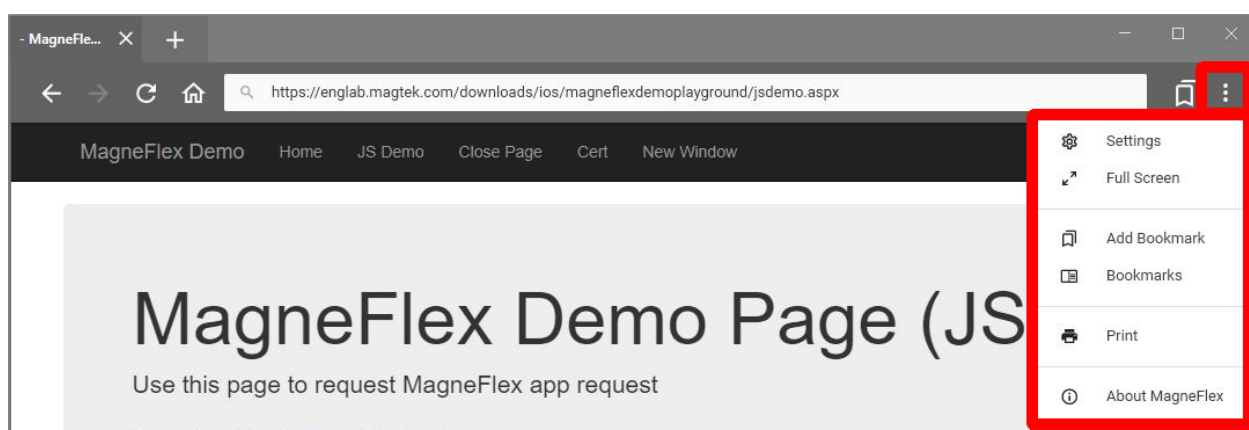


Figure B: Main menu, MagneFlex Browser for Windows

The following sections describe the options available from this menu.

##### 3.1.1 Settings

Click on **Settings** to open the window from which the MagneFlex Browser settings can be configured.

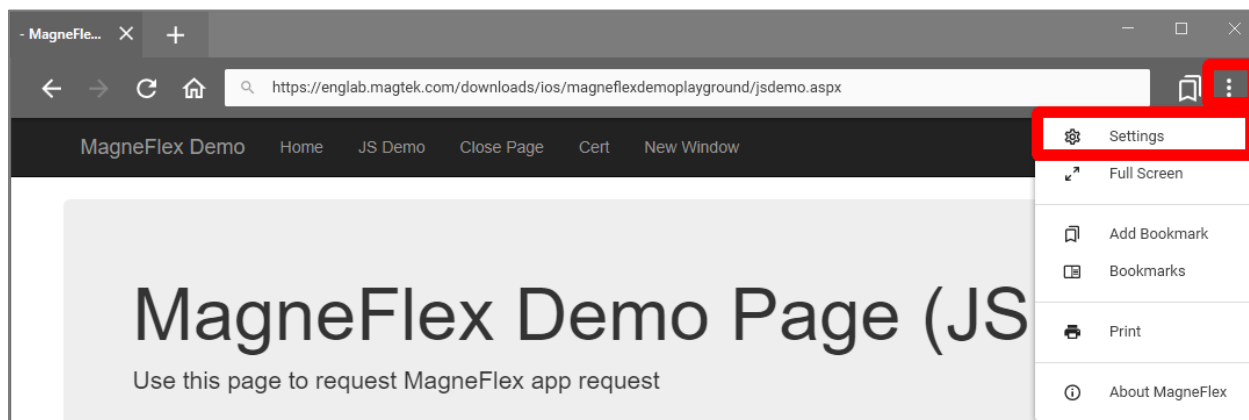
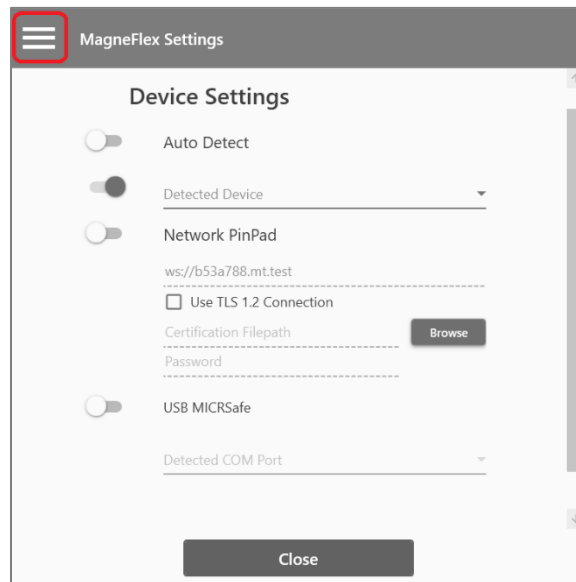


Figure C: Settings menu, MagneFlex Browser for Windows

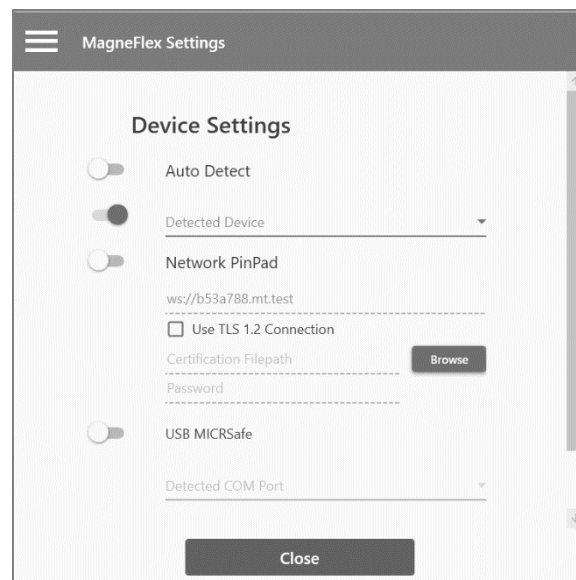
To access the menu settings available from this window, click on the hamburger menu (≡) icon in the upper left corner of the window.



**Figure D: Settings submenu, MagneFlex Browser for Windows**

### 3.1.1.1 Device Settings

Click on ≡ → **Device Settings** to modify the settings to be used for the MagTek Reader that will be accessed by the MagneFlex Browser.



**Figure E: Device Settings, MagneFlex Browser for Windows**

If you are connecting a MagTek SCRA or eDynamo, choose MSR (USB). If you are connecting to a DynaPro family Reader, select PinPad (USB) or PinPad (Ethernet – an IP address will be required).



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If using WebSocket, use ws://[ip-address] for non TLS or wss://[ip-address] for secure TLS. The browse to client certificate file .p12 or .pfx, and enter the certificate password if using secure TLS.

### 3.1.1.2 Launch Settings

Click on ≡ → **Home** to access the settings that determine what the MagneFlex Browser will do when it first runs.

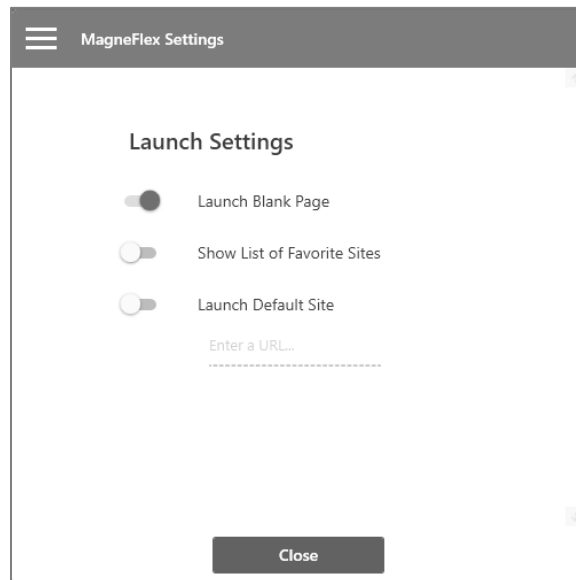


Figure F: Launch Settings, MagneFlex Browser for Windows

### 3.1.1.3 Privacy Settings

Click on ≡ → **Privacy and Security** to change Browser cache settings, set whether the cache is cleared on program exit, control whether pop-up windows are permitted, and clear the cache.

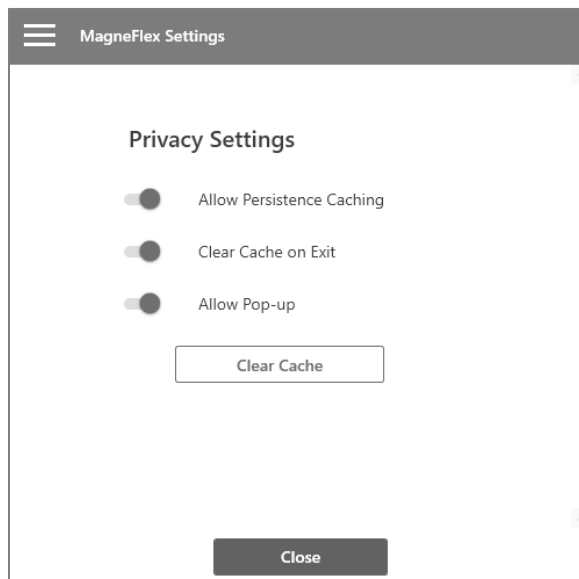


Figure G: Privacy Settings, MagneFlex Browser for Windows

### 3.1.2 Full Screen

Click on : ➔ **Full Screen** to put the MagneFlex Browser into full screen mode. Press the [F11] key to switch back to windowed mode.

### 3.1.3 Add Bookmark

Click on : ➔ **Add Bookmark** to add a bookmark.

### 3.1.4 Bookmarks

Click on : ➔ **Bookmarks** to see the list of the bookmarks you have saved in the Browser.

### 3.2 Apple iOS

MagneFlex Browser is available in the Apple App Store. Search “MagneFlex”. This application is also available for customization and can be deployed to the Apple App Store under the HTML Application developer’s own Apple product plan. Please see a MagTek sales representative for further details.

The following sections describe the options available from the main menu.

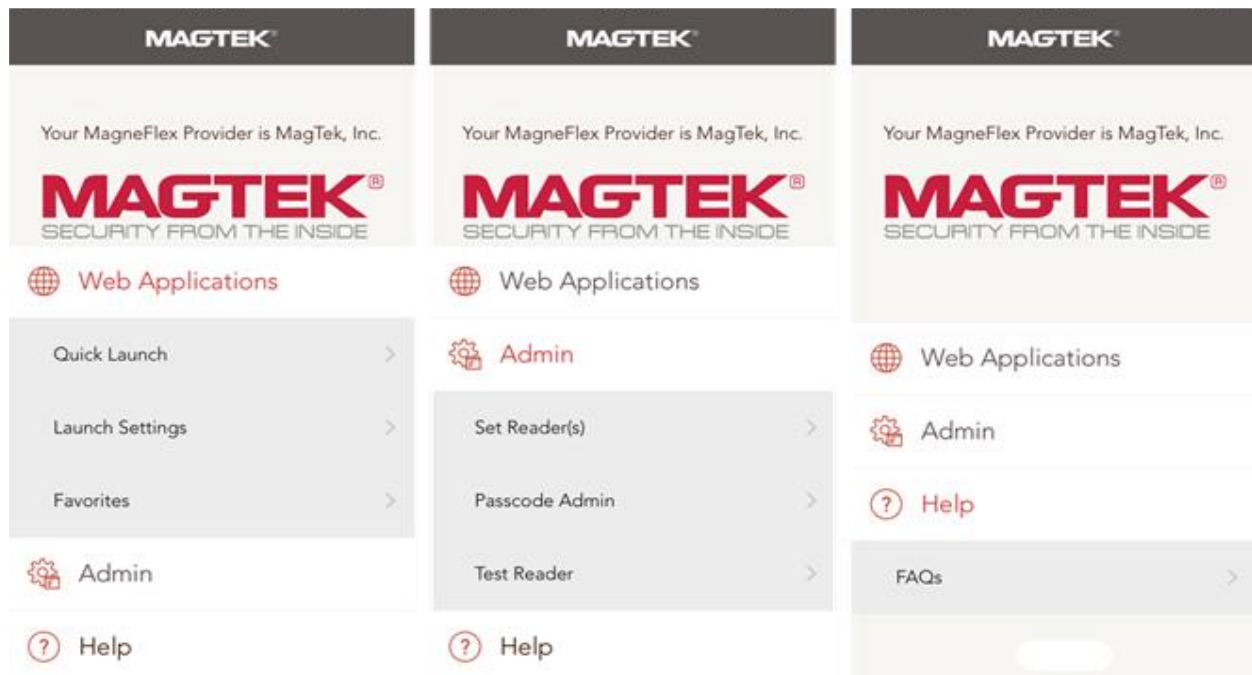


Figure H: Menu options, MagneFlex Browser for iOS

#### 3.2.1 Web Applications

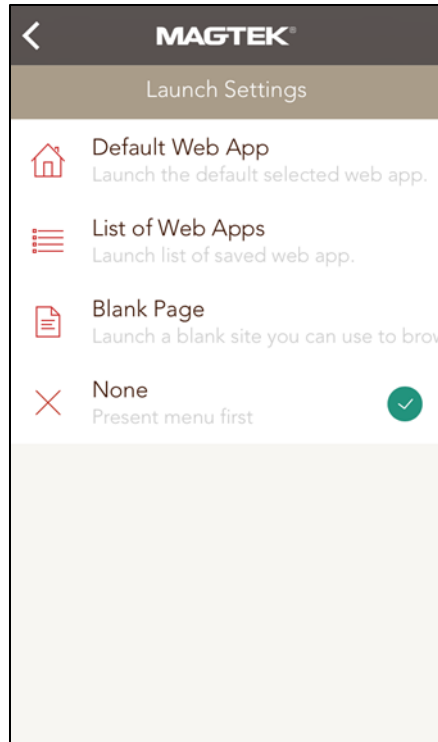
##### 3.2.1.1 Quick Launch

Perform the action stored in **Launch Settings**.

##### 3.2.1.2 Launch Settings

Determines the behavior of the MagneFlex app upon launch:


- **Default Web App:** Immediately surf the website stored in **Favorites** that has been marked as “Default”
- **List of Web Apps:** Open the list of websites stored in **Favorites**.
- **Blank Page:** Opens a blank page.
- **None:** Present menu first.

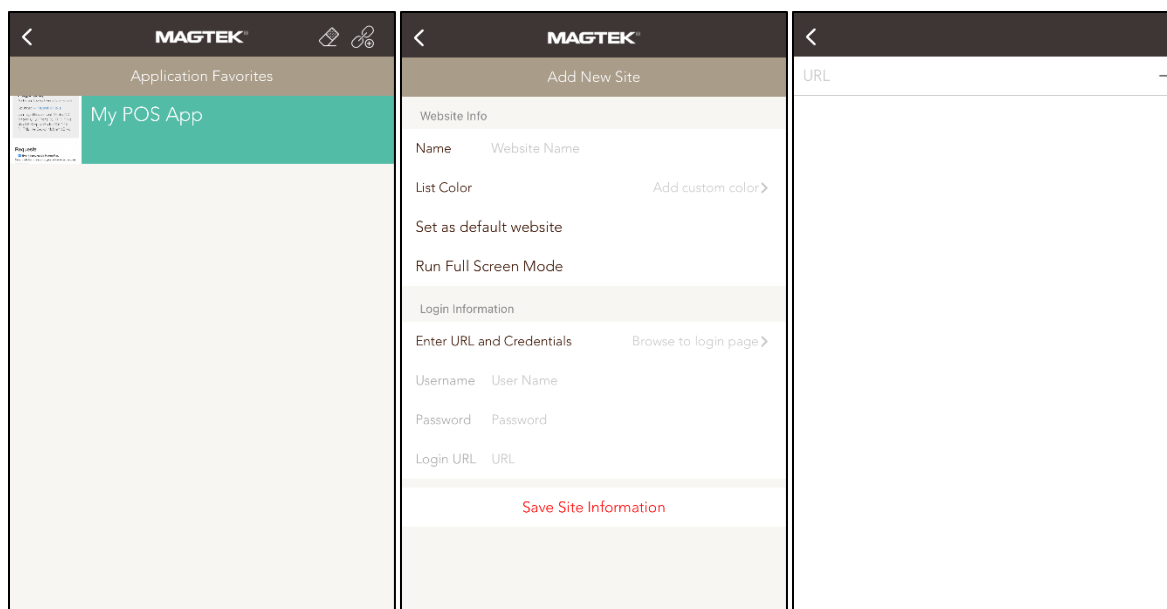


**Figure I: Launch Settings, MagneFlex Browser for iOS**

### 3.2.1.3 Favorites

A list of website URLs stored in the application. Allows the user to enter and store multiple URLs, as well as select websites to open.


The **Favorites** screen lists all websites that have been setup in the application. The user may launch websites from this screen, or they may add new favorites by selecting  **Add New Site**.



**Figure J: Favorites menus, MagneFlex Browser for iOS**

**Add New Site:** Add a new website favorite. Select **Save Site Information** once complete.

- **Name:** A “friendly” name for the website. Will be displayed on the **Favorites** list (example: “My POS App”).
- **List Color:** The background color of the website listing in **Favorites**.
- **Set as default website:** Sets this website as the default for **Launch Settings**.
- **Run Full Screen Mode:** Launches website in full screen mode.

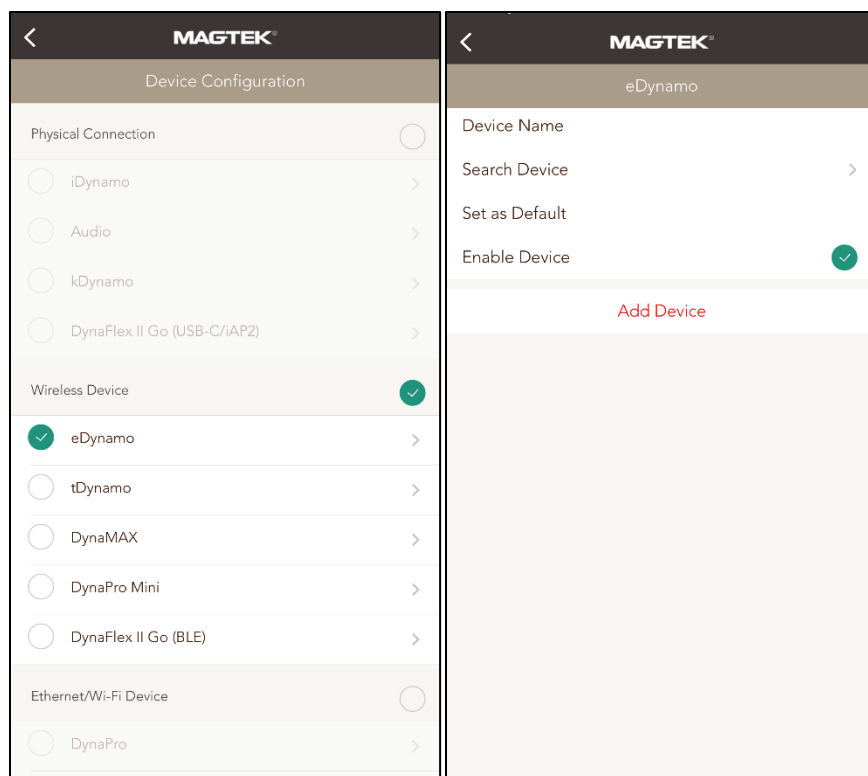
**Enter URL and Credentials:** Selecting this item will cause the Browser to launch and display a blank page. Enter a URL and surf to the desired start point for the favorite. After completion select , and you will return to **Add New Site**. The start URL will show in **Login URL**. If the start page of the desired favorite requires *username* and *password* entry, the application will automatically detect the entry of these credentials and ask if you wish to store them. Selecting “yes” will cause the application to automatically login the user.

### 3.2.2 Admin

#### 3.2.2.1 Set Readers(s)

Configure the application to communicate with various MagTek Readers.

The **Device Configuration** screen allows the user to select and configure the MagTek Readers to be used with **MagneFlex Browser**.



**Figure K: Device Configuration, MagneFlex Browser for iOS**

First select an interface type, and then select the Reader model. On the following screen, attributes for the Reader may be selected and entered.

- **Device Name:** Enter a name for the Reader (DynaFlex II PED, DynaPro/Go Ethernet/Wi-Fi only).
- **Device Address:** Enter the IP address of the Reader. (DynaFlex II PED, DynaPro/Go Ethernet/Wi-Fi only).  
If the reader is a USB Reader, then just select USB Reader and Save Device Information.  
Enter the IP address of the Reader. (DynaFlex II PED, DynaPro/Go Ethernet/Wi-Fi only).  
[ip-address] - for DynaPro Ethernet  
ws:// - for non TLS WebSocket  
wss:// - for TLS WebSocket
- **Search Device:** If the Reader is discoverable over Bluetooth, this option will be available. Select it to find Bluetooth Readers in range.
- **Set as Default:** Select if you wish to make this Reader the default Reader for the application.
- **Enable Device:** This selection shows whether the Reader is enabled for use.
- **Use TLS Connection:** Enables TLS connection.
- **Saved Devices:** Readers that have already been configured will be displayed in this list.

**Add Device:** This selection saves the Reader configuration and makes it available to the application for use.

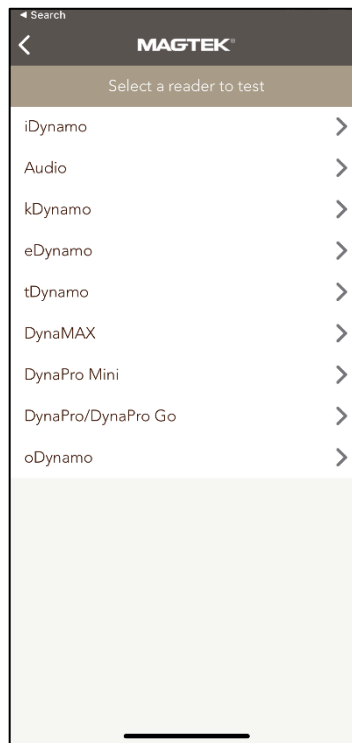
### 3.2.2.2 Passcode Admin

Set a passcode lock for the application.

### 3.2.2.3 Test Readers

Test a configured Reader for proper operation.

The user may attach or associate any Reader type shown on this list to their mobile device and test its function by selecting the appropriate item.



**Figure L: Test Readers, MagneFlex Browser for iOS**

The application will attempt to communicate with the Reader, and if successful, ask the user to swipe a card. The raw data from the swipe will be displayed on the screen. The Reader DOES NOT need to be configured on the **Device Configuration** screen first.

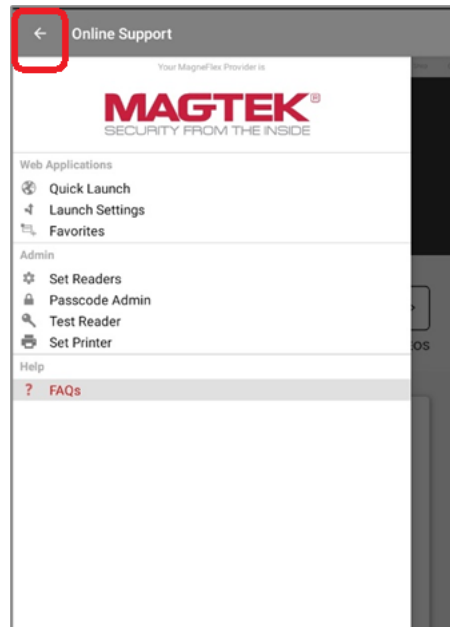
### 3.2.3 Help

- **FAQs:** Browse MagTek support website.

### 3.3 Android

MagneFlex Browser is available in Google Play. Search “MagneFlex”. This application is also available for customization and can be deployed to Google Play under the HTML Application developer’s own Google product plan. Please see a MagTek sales representative for further details.

The main menu for the Android version of the MagneFlex Browser can be accessed by tapping the left arrow icon (←) in the upper left corner of the screen.



**Figure M: Main Menu, MagneFlex Browser for Android**

The following sections describe the options available from this menu.

#### 3.3.1 Web Applications

##### 3.3.1.1 Quick Launch

Perform the action stored in Launch Settings.

##### 3.3.1.2 Launch Settings

Determines the behavior of the MagneFlex app upon launch:

- **Default Web App:** Immediately surf the website stored in **Favorites** that has been marked as “Default”
- **List of Web Apps:** Open the list of websites stored in **Favorites**.
- **Blank Page:** Opens a blank page.
- **None:** Present menu first.



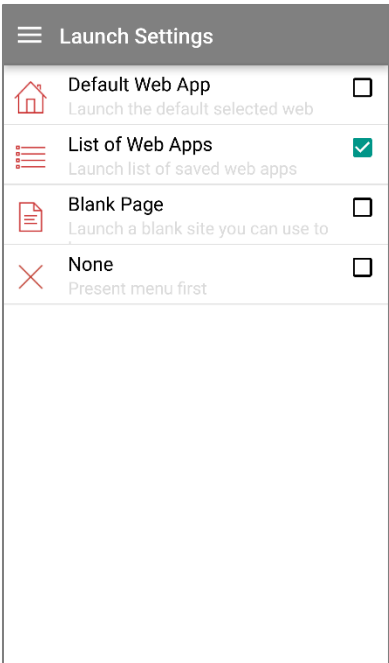



Figure N: Launch Settings, MagneFlex Browser for Android

3.3.1.3 Favorites

A list of website URLs stored in the application. Allows the user to enter and store multiple URLs, as well as select websites to open.

The **Favorites** screen lists all websites that have been setup in the application. The user may launch websites from this screen, or they may add new favorites by selecting  **Add New Site**.

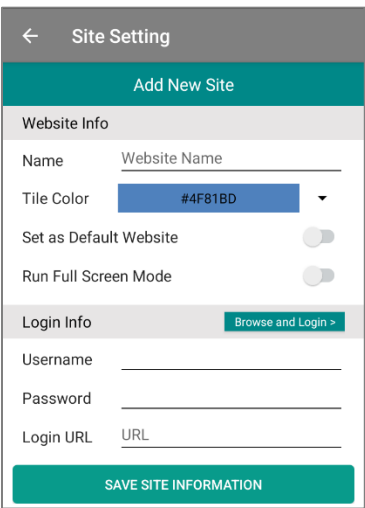




Figure O: Adding a favorite location, MagneFlex Browser for Android

**Add New Site:** Add a new website favorite. Select **Save Site Information** once complete.

- **Name:** A “friendly” name for the website. Will be displayed on the **Favorites** list (example: “My POS App”).
- **Tile Color:** The background color of the website listing in **Favorites**.
- **Set as default website:** Sets this website as the default for **Launch Settings**.
- **Run Full Screen Mode:** Launches website in full screen mode.
- **Browse and Login:** Selecting this item will cause the Browser to launch and display a blank page. Enter a URL and press  to surf to the desired start point for the favorite. After completion, select  to return to **Add New Site**. The start URL will show in **Login URL**. If the start page of the desired favorite requires *username* and *password* entry, the application will automatically detect the entry of these credentials and ask if you wish to store them. Selecting “yes” will cause the application to automatically login the user.

### 3.3.2 Admin

#### 3.3.2.1 Set Readers(s)

Configure the application to communicate with various MagTek Readers.

The **Device Configuration** screen allows the user to select and configure the MagTek Readers to be used with **MagneFlex Browser**.

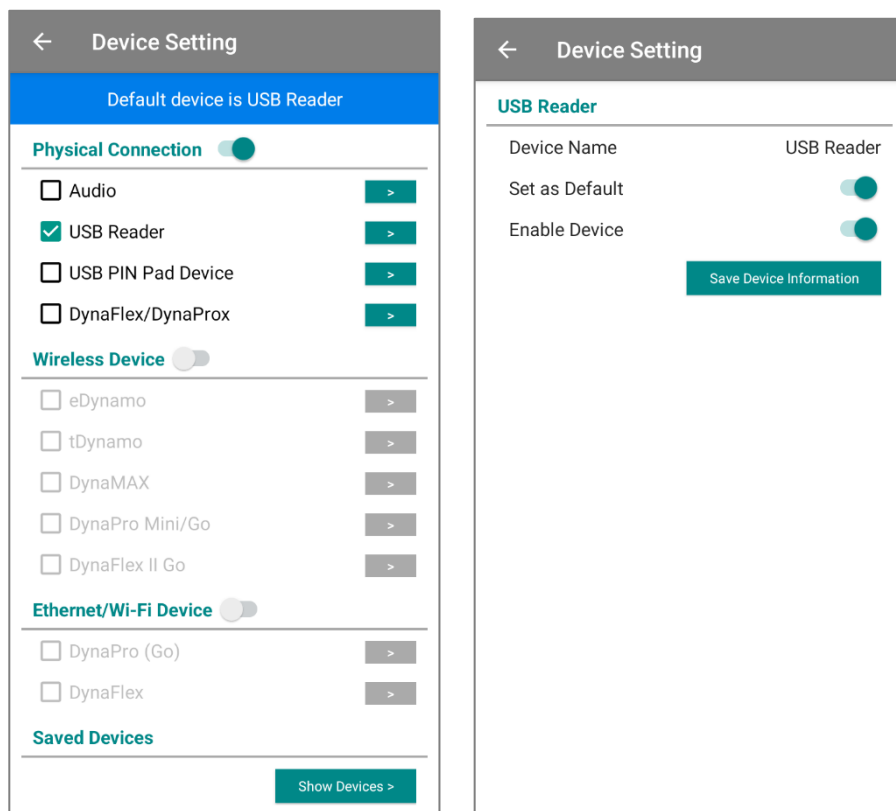


Figure P: Device Configuration, MagneFlex Browser for Android

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First select an interface type/type of connection, and then select the Reader model. On the following screen, attributes for the Reader may be selected and entered.

- **Device Name:** Enter a name for the Reader (DynaFlex II PED, DynaPro/Go Ethernet/Wi-Fi only). If the reader is a USB Reader, then just select USB Reader and Save Device Information. Enter the IP address of the Reader. (DynaFlex II PED, DynaPro/Go Ethernet/Wi-Fi only).  
[ip-address] - for DynaPro Ethernet  
ws://[ip-address] - for non TLS WebSocket  
wss://[ip-address] - for TLS WebSocket
- **Search Device:** If the Reader is discoverable over Bluetooth, this option will be available. Select it to find Bluetooth Readers in range.
- **Set as Default:** Select if you wish to make this Reader the default Reader for the application.
- **Enable Device:** This selection shows whether the Reader is enabled for use.
- **Saved Devices:** Readers that have already been configured will be displayed in this list.
- **Client Certificate File:** Browse to client certificate file .p12 or .pfx.
- **Client Password:** Enter the client certificate password.
- **Use TLS Connection:** Enables TLS connection.
- **Use Demo TLS Certificate:** Enables Demo TLS connection.
- **Save Device Information:** Saves the Reader configuration and makes it available to the application for use.

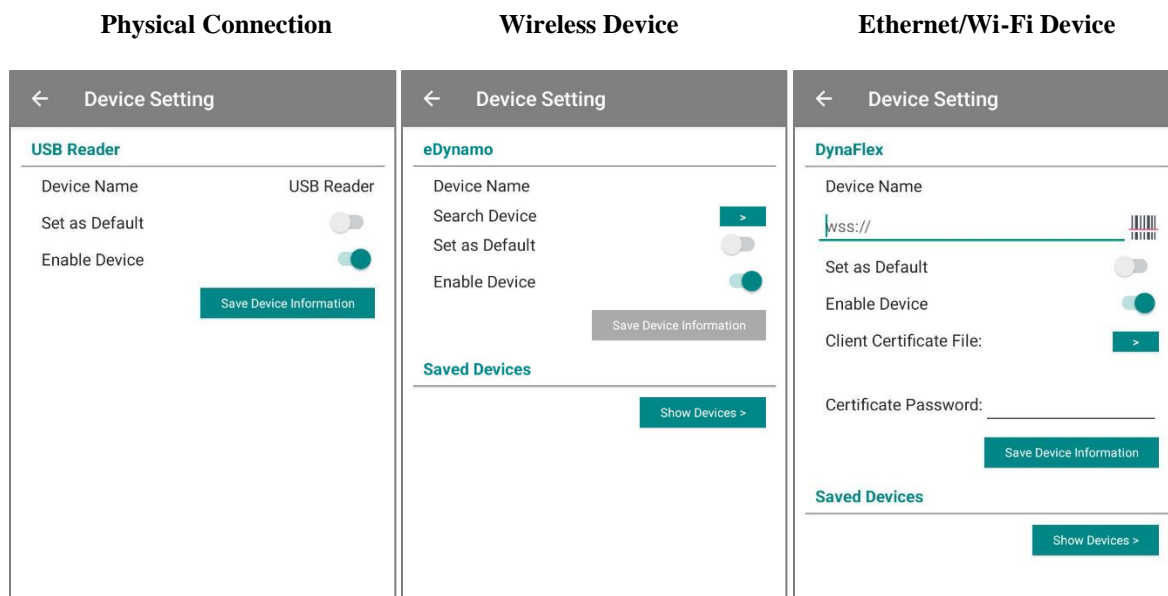


Figure Q: Interface type

### 3.3.2.2 Passcode Admin

Set a passcode lock for the application.

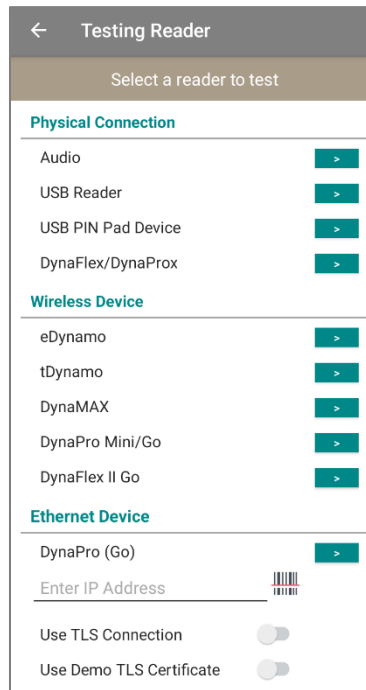
### 3.3.2.3 Test Readers

Test a configured Reader for proper operation.

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The user may attach or associate any Reader type shown on this list to their mobile device and test its function by selecting the appropriate item.



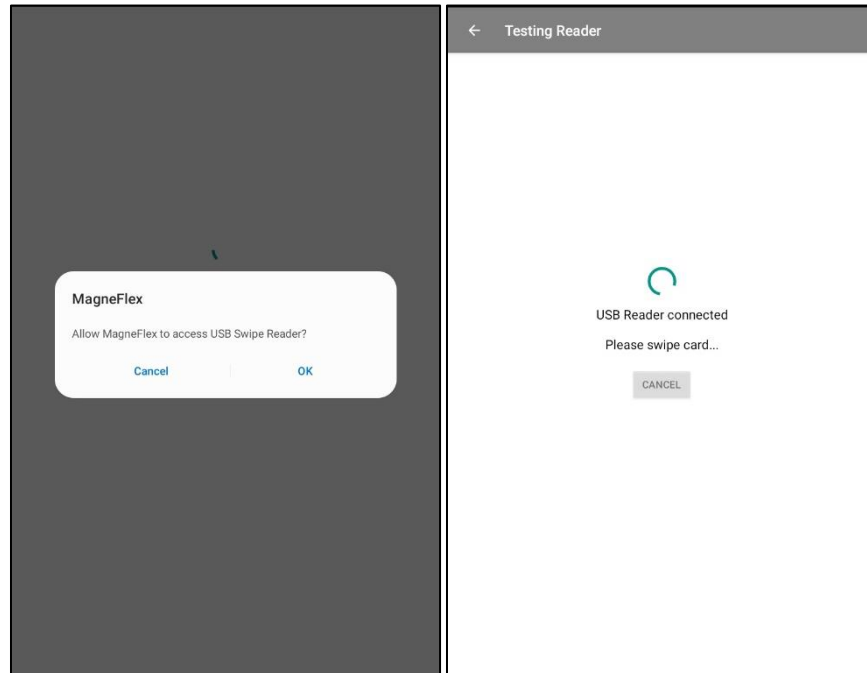
**Figure R: Test Reader, MagneFlex Browser for Android**

The application will attempt to communicate with the Reader, and if successful, ask the user to swipe a card. The raw data from the swipe will be displayed on the screen. The Reader DOES NOT need to be configured on the **Device Configuration** screen first.

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When using a USB Reader, you will see a screen indicating that MagneFlex wants to access the USB Swipe Reader. You will need to press OK. Next, a window will open asking the user to “Please swipe card...”.



### 3.3.3 Help

- **FAQs:** Browse MagTek support website.

### 4 HTML Application Integration

MagneFlex iOS, Android, and MagneFlex v2 in Windows uses JavaScript request and callback. MagneFlex JS library ([MTMagneFlexLib.js](#)) can be utilized by the customer.

The remainder of this section is a summary of requests.

For full details on MTMagneFlexLib.js, see

*D998200507 MTMagneFlexLibJS For MagneFlex Browser Programmer's Manual ( Java Script )*

In this example, swipeCallBack is a function pointer for MagneFlex to callback on.

Example:

```
function requestCardSwipe()  
{  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.timeLimit = '3C';  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_CARD_SWIPE;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.customDisplayMessage = 'Please Swipe Card';  
    requestParam.fullScreenMode = false;  
    requestParam.closeDeviceAfter = true;  
    requestParam.destinationURL = '';  
  
    MTMagneFlexLib.requestCardSwipe(readerParam, requestParam,  
swipeCallBack);  
}
```

Parameter	Description
readerParameter	Reader parameters to be sent to the Reader.  Ex) timeLimit, tone, option, maxPinLength, minPinLength, pinOption etc.
requestParemeter	Parameters for Request to be sent.  Ex) Operation (refer to operation definition in next chapter), httpMethod (NONE), closeDeviceAfter

### 4.1 Operation Definitions and Inputs

MagneFlex Browser recognizes and performs the following operations:

#### 4.1.1 requestCardSwipe

Commands the Reader to perform a magnetic stripe card swipe. There is no readerParameter with this operation. This operation is intended for SCRA family of magnetic stripe reading Readers.

```
function requestCardSwipe()  
{  
  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.timeLimit = '3C';  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_CARD_SWIPE;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.customDisplayMessage = 'Please Swipe Card';  
    requestParam.closeDeviceAfter = true;  
  
    MTMagneFlexLib.requestCardSwipe(readerParam, requestParam,  
swipeCallBack);  
}
```

Parameter	Description
operation	REQUEST_CARD_SWIPE
httpMethod	NONE
customDisplayMessage	When modal prompting user, this message will be displayed to let user know why they card swipe is needed.
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

#### 4.1.2 requestSendCommand

Commands the Reader to perform the operations defined in readerParameter. See the Programmer's Reference Manual for the Reader for a list of available commands and the byte sequence required.

```
function requestSendCommand(command)  
{  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.timeLimit = '3C';  
    readerParam.waitForReport = '01';  
    readerParam.command = command;  
    readerParam.endSession = true;  
    readerParam.commandType = 'GET';  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_SEND_COMMAND;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.fullScreenMode = false;  
    requestParam.closeDeviceAfter = true;
```

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```
MTMagneFlexLib.requestSendCommand(readerParam, requestParam,  
commandCallBack);  
}
```

Parameter	Description
command	Command to send to device.
endSession	Lets DynaPro device family know if endsession is needed.
commandType	Applies to DynaPro Devices. GET/SET
operation	REQUEST_SEND_COMMAND
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

### 4.1.3 requestSendExtendedCommand

Commands the Reader to perform the extended command defined in readerParameter. See the Programmer's Reference Manual for the Reader for a list of extended commands and the byte sequence required.

```
function requestSendExtendedCommand(extendedCommand)  
{  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.timeLimit = '3C';  
    readerParam.commandValue = extendedCommand;  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_SEND_EXTENDED_COMMAND;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.fullScreenMode = false;  
    requestParam.closeDeviceAfter = true;  
    MTMagneFlexLib.requestSendCommand(readerParam, requestParam,  
commandCallBack);  
}
```

Parameter	Description
commandValue	Extended command to send.
operation	REQUEST_SEND_EXTENDED_COMMAND
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.



### 4.1.4 requestStartEMVTransaction

Commands the Reader to perform an EMV transaction (if capable). This operation must be accompanied by readerParameter. See the Reader's Programmer's Reference Manual, "Start EMV Transaction".

```
function requestSmartCard(quickChip) {  
  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.timeLimit = '3C';  
    readerParam.endSession = "true";  
    readerParam.amount = "99.99";  
    readerParam.cashBack = "9.99";  
    readerParam.option = "00";  
    readerParam.currencyCode = "0840";  
    readerParam.cardType = "02";  
    readerParam.transactionType = "00";  
    if (quickChip)  
        readerParam.quickChipMode = "true";  
    else  
        readerParam.quickChipMode = "false";  
    readerParam.sendBatchData = "true";  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_SMART_CARD_TRANSACTION;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.fullScreenMode = false;  
    requestParam.closeDeviceAfter = false;  
    MTMagneFlexLib.requestSmartCard(readerParam, requestParam,  
    arcqDataCallBack, batchDataCallback);  
}
```

readerParameter is dependent on the type of Reader used. Please refer to COMMANDS documentation.

Parameter	Description
amount	The amount to be used and authorized in decimal format. 1.01 = 1 dollar and 1 cent
cashback	The amount to be used and authorized in decimal format. 1.01 = 1 dollar and 1 cent
cardType	01 : Magnetic Strip 02 : Contact Smart Card 03 : Magnetic stripe or contact smart card 04 : Contactless smart card (Not supported on DynaPro Mini) 05 : Contactless smart card + magnetic stripe 06 : Contactless smart card + contact smart card 07 : Magnetic stripe + contact smart card + contactless smart card
quickChipMode	QuickChip enabling true or false.
operation	REQUEST_SMART_CARD_TRANSACTION

Parameter	Description
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

### 4.1.5 sendARPC

Commands the Reader to accept an ARPC returned by the card issuer at the completion of an EMV transaction (if required). This operation must be accompanied by readerParameter containing the ARPC data. See the Reader's Programmer's Reference Manual, "Acquirer Response ARPC".

```
function sendARPC(data) {  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.commandValue = data;  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_SEND_ARPC;  
    requestParam.httpMethod = HTTPMethod.NONE;  
    requestParam.fullScreenMode = false;  
    requestParam.closeDeviceAfter = true;  
  
    MTMagneFlexLib.requestSendARPC(readerParam, requestParam);  
}
```

Parameter	Description
commandValue	Acquirer response to card.
operation	REQUEST_SEND_ARPC
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

### 4.1.6 requestPIN

Commands the Reader, if it has a PIN PAD, to prompt the user for the entry of a PIN. This operation must be accompanied by readerParameter. See the Reader's Programmer's Reference Manual, "Request PIN Entry".

```
function requestPINEntry()  
{  
    var readerParam = new MTMagneFlexParameter.readerParameter();  
    readerParam.endSession = true;  
    readerParam.timeLimit = "3C";  
    readerParam.fieldSeparator = "|";  
    readerParam.maxPinLength = "0C";  
    readerParam.minPinLength = "04";  
    readerParam.pinMode = "0";  
    readerParam.tone = "01";  
    readerParam.pinOption = "02";  
  
    var requestParam = new MTMagneFlexParameter.requestParameter();  
    requestParam.operation = MagneFlexOp.REQUEST_PIN_ENTRY;
```

```
requestParam.httpMethod = HTTPMethod.NONE;
requestParam.fullScreenMode = false;
requestParam.closeDeviceAfter = true;
MTMagneFlexLib.requestPinEntry(readerParam, requestParam,
pinDataCallback);
}
readerParameter : please refer to DynaPro command manual.
```

Parameter	Description
pinMode	Message to display as a user prompt:  0 = ENTER PIN 3 = Incorrect PIN Please re-enter PIN 4 = FOR VERIFICATION RE-ENTER PIN
Tone	Tones to use:  0 = No sound 1 = One beep 2 = Two beep
maxPinLength	Maximum PIN length. Must be less than 13
minPinLength	Minimum PIN length. Must be greater than 3.
operation	REQUEST_PIN_ENTRY
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

### 4.1.7 requestManualCardEntry

Commands the Reader, if it has a PIN PAD, to prompt the user for the entry of a card number. This operation must be accompanied by readerParameter. See the Reader's Programmer's Reference Manual, "Request Manual Card Entry".

```
function requestManualEntry()
{
    var readerParam = new MTMagneFlexParameter.readerParameter();
    readerParam.endSession = true;
    readerParam.timeLimit = "3C";
    readerParam.tone = "01";
    readerParam.option = "08";

    var requestParam = new MTMagneFlexParameter.requestParameter();
    requestParam.operation = MagneFlexOp.REQUEST_MANUAL_CARD_ENTRY;
    requestParam.httpMethod = HTTPMethod.NONE;
    requestParam.fullScreenMode = false;
    requestParam.closeDeviceAfter = true;
    MTMagneFlexLib.requestManualEntry(readerParam, requestParam,
manualCardDataCallback);

}
```

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Parameter	Description
tone	Set to 01
operation	REQUEST_MANUAL_CARD_ENTRY
httpMethod	NONE
closeDeviceAfter	Lets MagneFlex know to close device after operation is done or not.

### 4.1.8 requestMagneFlexFeature

Controls features of the MagneFlex browser. This is sent as a query string.

Parameter	Description
operation	RequestMagneFlexFeature
featureType	Feature to control. Supported on Android version of MagneFlex.  requestHideToolbar = Hide the toolbar  requestShowToolbar = Show the toolbar

Examples:

?operation=requestMagneFlexFeature&featureType=requestHideToolbar

?operation=requestMagneFlexFeature&featureType=requestShowToolbar

### 4.2 Operation Outputs

MagneFlex Browser will return to the HTML Application data returned by the Reader using JavaScript callback provided.

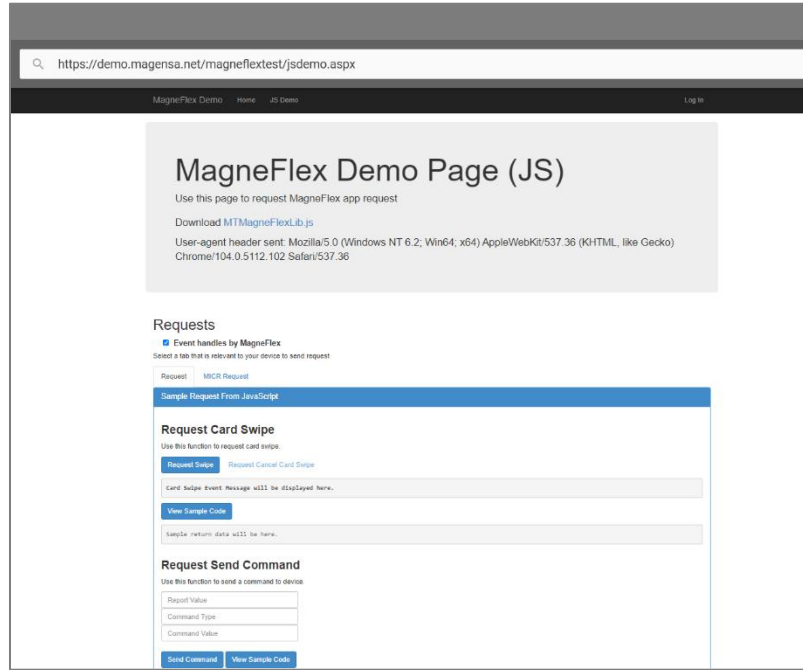
Variable	Description
opType	Indicates the operation performed:  requestCardSwipe: CARD_SWIPE_RESULT  requestSendCommand: SEND_COMMAND_RESULT  requestSendExtendedCommand: SEND_EXTENDED_COMMAND_RESULT  requestStartEMVTransaction: EMV_ARQC_RESULT  sendARPC: EMV_TRANS_RESULT  requestPIN: PIN_RESULT  requestManualCard: CARD_MANUAL_SWIPE  requestSignature: SIGNATURE_RESULT
cardDataIn	requestCardSwipe and requestManualCard only. The result of these operations in TLV format. See appendix B for common TLV tag definitions.
commandID	requestSendCommand and requestSendExtendedCommand only. An echo of the command that was sent in the operation.
commandResult	requestSendCommand and requestSendExtendedCommand only. Data returned from the Reader as a result of the command.
arqcData	requestStartEMVTransaction only. The ARQC data from an EMV transaction.
batchData	sendARPC only. The batch data from an EMV transaction.
operationStatus	requestPIN only. The status of the PIN operation from the Reader.
pinEPB	requestPIN only. The encrypted PIN block from the PIN operation.
pinKSN	requestPIN only. The KSN of the encrypted PIN block from the PIN operation.
signatureDataIn	requestSignature only. Signature data from the Reader.

Variable	Description
signatureResult	requestSignature only. Result of the signature operation.
passInData	Echo of the passInData variable in the HTML link.

## 5 Test page

As part of our developer tools, we also include a test demo page that developers can access:

<https://demo.magensa.net/magneflex/jsdemo.aspx>



**Figure S: MagneFlex Browser Demo Page**

### 6 Appendix A – Supported Readers

MagTek Devices	Windows	Apple iOS	Android
MagTek SCRA	USB	NA	NA
DynaWave	USB & UART	NA	USB
iDynamo 5	NA	Lightning	NA
iDynamo 6	USB	Lightning	USB
kDynamo	NA	Lightning	USB
tDynamo	USB & Bluetooth	Bluetooth	Bluetooth & USB
uDynamo	USB	Audio jack	Audio jack
cDynamo	NA	Lightning	NA
eDynamo	USB	Bluetooth	Bluetooth & USB
DynaPro	USB & Ethernet	Ethernet	USB & Ethernet
DynaPro Go	USB & Wi-Fi	Wi-Fi	Bluetooth & Wi-Fi & USB
DynaPro mini	USB	Bluetooth	Bluetooth & USB
DynaPAD	USB	NA	NA
Dynamag	USB	NA	NA
DynaProx	USB	NA	USB
DynaFlex II Go	USB & Bluetooth	iAP2 & Bluetooth	USB & Bluetooth
DynaFlex II PED	USB & WLAN	WLAN	USB & WLAN
MICRSafe	USB (VCOM)	NA	NA



### 7 Appendix B – Common MagTek Magnetic Stripe Reader TLV Tags

DFDF25	Device Serial Number
DFDF30	Masked T1 Status
DFDF31	Masked T1
DFDF32	Masked T2 Status
DFDF33	Masked T2
DFDF34	Masked T3 Status
DFDF35	Masked T3
DFDF36	Encrypted T1 Status
DFDF37	Encrypted T1
DFDF38	Encrypted T2 Status
DFDF39	Encrypted T2
DFDF3A	Encrypted T3 Status
DFDF3B	Encrypted T3
DFDF3C	Encrypted MagnePrint
DFDF3D	MS2.0 Status
DFDF43	MagnePrint Status Data
DFDF50	Key Serial Number