

# TWN4

## Mobile Apps for Android and iOS

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# 1 Mobile Badge BLE - App for Android or iOS Phone / Tablet

The apps for both operating systems Android and iOS scans for nearby BLE devices and connects automatically to TWN4 MultiTech BLE readers in the proximity of the mobile device. The maximum separation between the reader and the mobile device across which a connection is allowed is adjustable via the "RSSI field strength" bar. Once a connection is established, the app sends the unique physical properties of the mobile phone / tablet to the reader so that a security code can be generated and forwarded to the device connected to reader.

In the next stage the app transmits the identity credentials of the user associated with the mobile phone / tablet hardware to the Elatec reader.

## 1.1 System Requirements

Elatec reader requirements:

- Elatec TWN4 MultiTech BLE reader
- Reader firmware with "Mobile Badge BLE" authentication functionality

The app supports Android 5.x OS or higher and iOS 10.x and higher. Ensure the following app permissions are given:

- Bluetooth V4.x
- Coarse Location (explicit necessary for Android phones)

## 1.2 Installation

### 1.2.1 Play Store for Android phones / tablet

Install the app "Mobile Badge BLE" on your phone / tablet via Play Store:

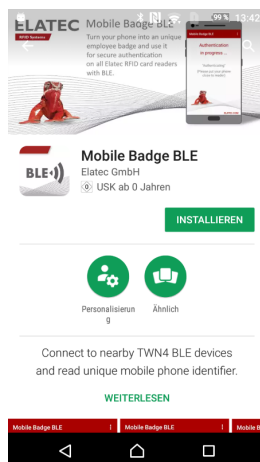


Figure 1.1: Mobile Badge BLE - Play Store

If any of the requirements for BLE operation are not fulfilled, the app informs the user on startup.

### 1.2.2 App Store for iOS phones / tablet

Install the app "Mobile Badge BLE" on your phone / tablet via App Store:

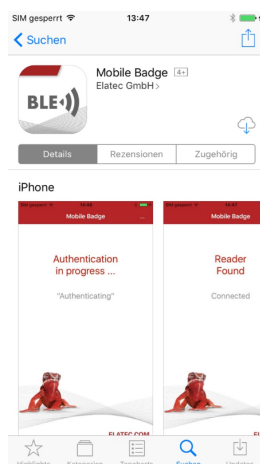


Figure 1.2: Mobile Badge BLE - App Store

If any of the requirements for BLE operation are not fulfilled, the app informs the user on startup.

## 1.3 Menu

Start the app and navigate to the menu on the top right corner of the screen by pressing symbol "...". The following subsections describe the functionality of each option in the menu.

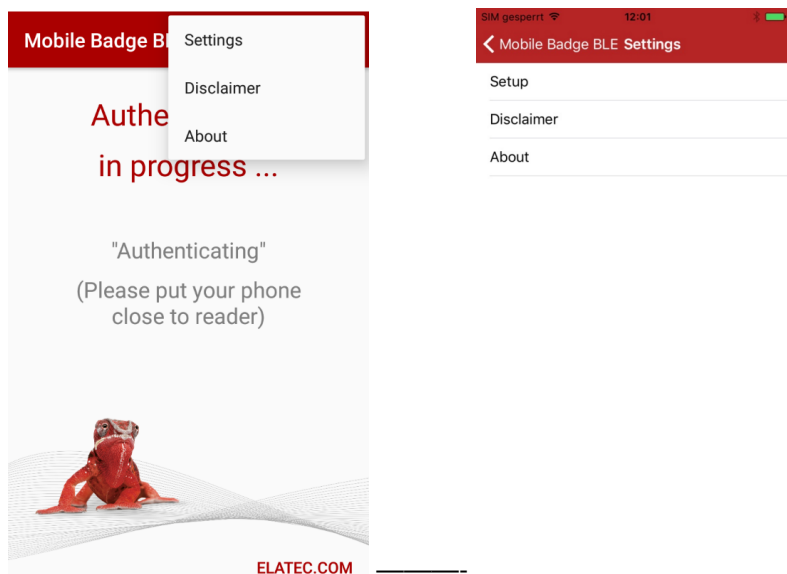


Figure 1.3: Mobile Badge BLE - Menu

### 1.3.1 Settings / Setup

When using the app at first time, you have to set the RSSI authentication distance to the reader:

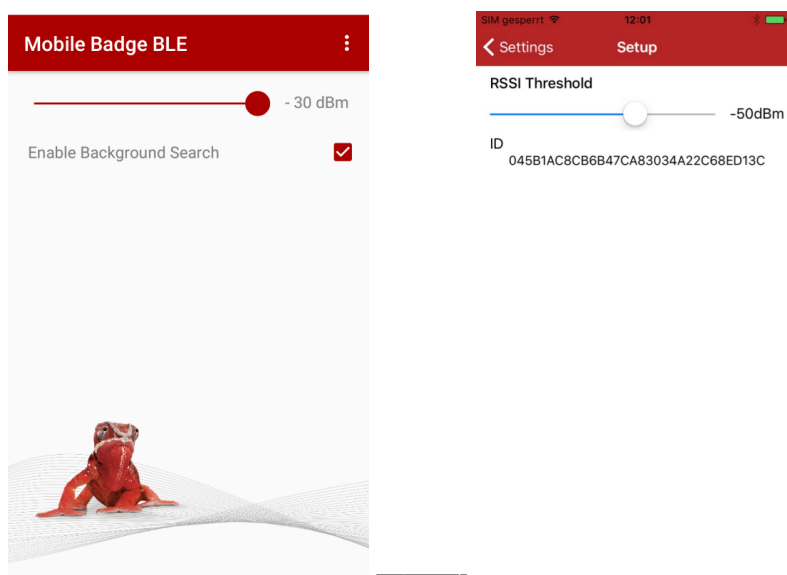


Figure 1.4: Mobile Badge BLE - Set RSSI Threshold

Select the menu point "Settings / Setup" and specify the maximum separation allowed for connecting the phone / tablet to the TWN4 MultiTech BLE reader. The value -30dB is for short and -100dB for wide identify distance from phone / tablet to the reader. So select your own preferred range!

### 1.3.2 Feature Background Search for Android

In the Android version you can Enable BLE Background Search to identificate without running the app in foreground. Enable this point and close the app: The BLE authentication is still active!

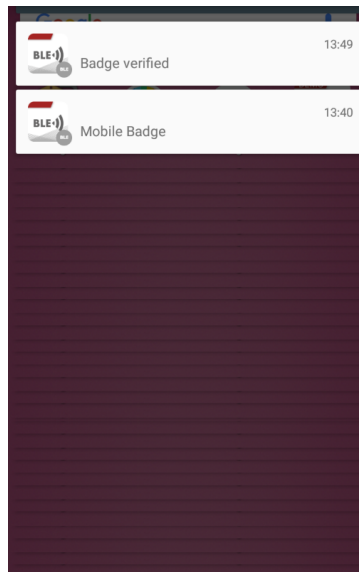


Figure 1.5: Mobile Badge BLE - Background Mode (Android)

The notification "Badge verified" appears after identification for 5 seconds.

### 1.3.3 The transferred ID

The transferred ID is a unique 16 byte number of phone / tablet hardware. In the reader firmware configure your wished format.

### 1.3.4 Disclaimer

This menu point gives remarks on the functionality of the app and the disclaimer of warranty and limitation of liability.

### 1.3.5 About

The menu point "About" gives information on the app and a list of successful tested phones with the app.

## 1.4 Authenticate your Identity

On startup the app scans the proximity area for Bluetooth BLE devices with name "TWN4 BLE".

If there is a TWN4 reader compatible with requirements listed in section 1.1 present in the neighborhood, the device connects to it. If authentication is achieved, the details are sent automatically to the periphery.

Once the identification is complete, remove the phone / tablet from the reader to prevent the process from starting again from the beginning.

Some Android phones do a waiting time till 10 seconds for the next possible connection. For that a idle time is integrated in the app software for a further connection.

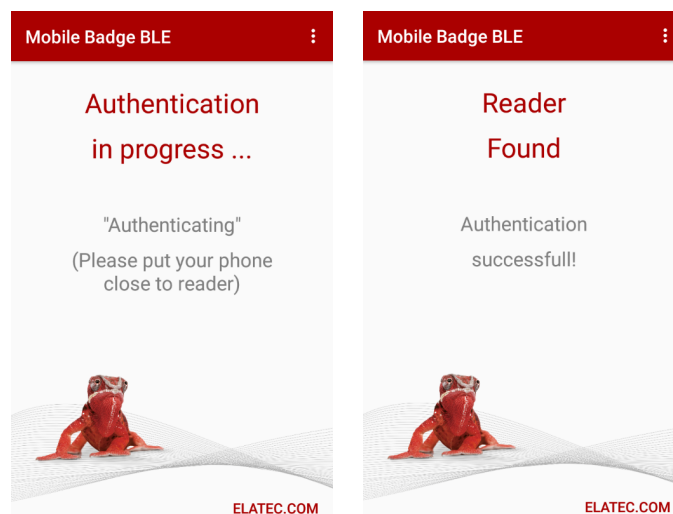


Figure 1.6: Mobile Badge - Authentication Process - Android

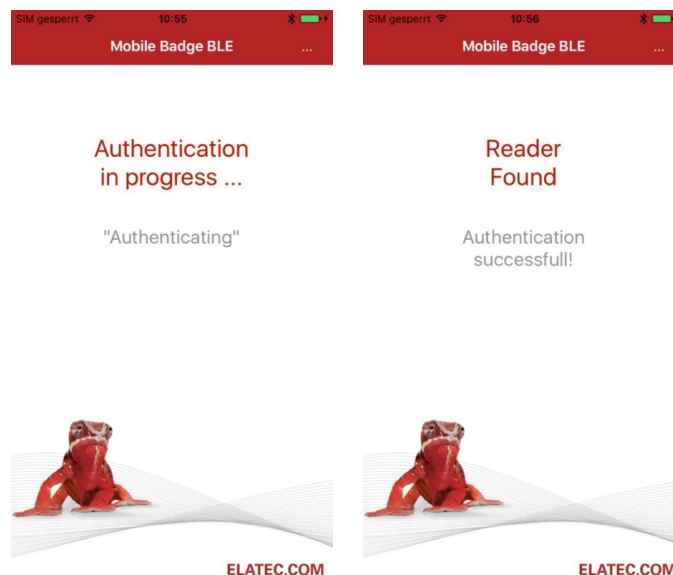


Figure 1.7: Mobile Badge - Authentication Process - iOS

## 2 TWN4 BLE Demo - BLE App for Android Phone / Tablet

The TWN4 BLE Demo app tests the BLE connection to the TWN4 MultiTech BLE reader. The app scans for nearby BLE devices and automatically connects with TWN4 MultiTech BLE readers within the allowed adjustable RSSI field strength. The reader then receives a random MAC address of the mobile phone / tablet and forwards it to a connected device.

This app is only for demonstration and not for productive use.

Requirements:

- Elatec TWN4 MultiTech BLE reader

Limitations:

- Depending on your mobile phone / tablet, the public or a random MAC address is transmitted.

App Permissions:

- Bluetooth
- Location (necessary for BLE)



## 3 TWN4 HCE Demo - HCE App for Android Phone / Tablet

The TWN4 HCE Demo app perform Host Card Emulation (HCE). The app emulates ISO14443A transponders and runs in the background without additional user input. If the APDU matches, a selectable response is transmitted to the TWN4 MultiTech reader.

Requirements:

- TWN4 MultiTech reader with HCE firmware
- NFC enabled mobile phone / tablet

Permissions:

- NFC
- Phone (for IMEI transmission)

Information:

- Since HCE demo version V1.02 the APDU is A0h, 00h, 00h, 07h, 55h, 05h, 01h.

## **4 TWN4 NFC Demo - NFC App for Android Phone / Tablet**

The TWN4 NFC Demo App exchanges selectable NDEF messages with the TWN4 MultiTech reader.

Requirements:

- TWN4 MultiTech reader with NFC firmware.
- NFC enabled mobile phone / tablet

Permissions:

- NFC
- Phone (for IMEI transmission)

## 5 Disclaimer

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