

APPLICATION NOTE

Web Access

Creating Mifare/DESFire high security cards for WS4 using XSMART

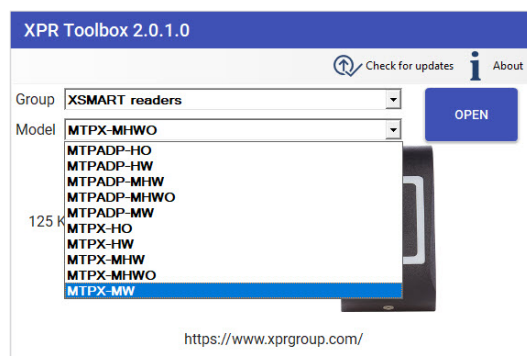
C018

- High security cards contain encrypted data which enables the controller to block access to cards which are not created on site.
- The following products are compatible with high security concept:

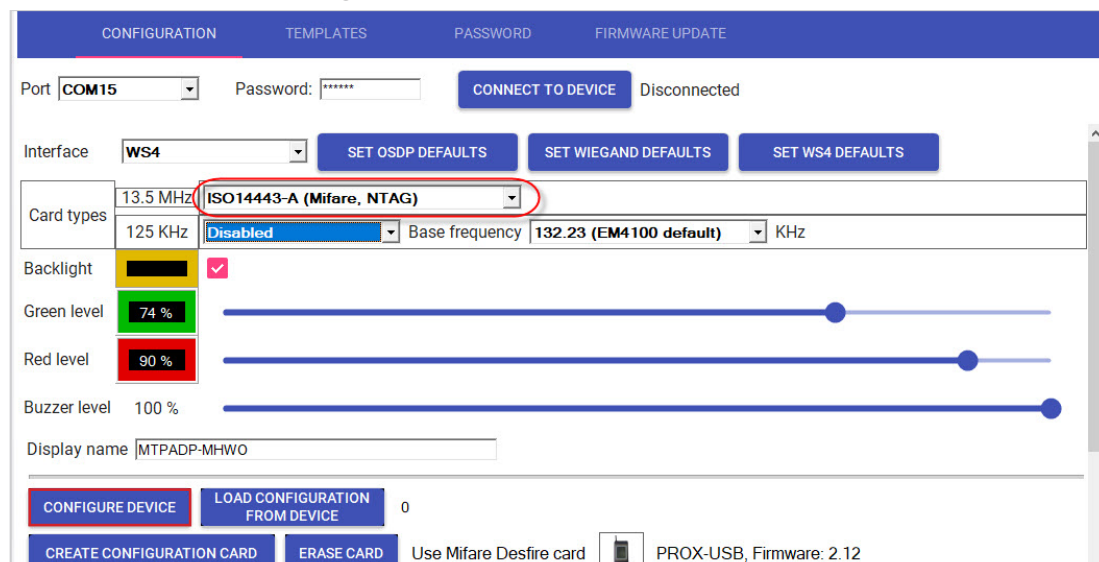
- XSMART Readers: **MTPX-MO**.
- XSMART Keypads: **MTPADP-MO**.
- Cards and tags: Cards (**PBX-2-EV2-2K**, **PBX-2-EV2-8K**), tags (**PBX-1E-EV2-2K**).

1. READER CONFIGURATION

- XPR Toolbox is the software app you need to configure the readers.
- XPR Toolbox can be downloaded from <https://software.xprgroup.com/>.
- After downloading and installing the software, run XPR Toolbox.
- Connect the reader to your PC using the Micro USB connector on the back of the reader.
- Select "**Group/XSMART readers**".
- Select "**Model**".
- Click on "**Open**" tab.



- In the new window click on the "**Connect to device**" tab. Tab text will change to "**Disconnect device**" if the reader is connected. If the software cannot connect to the reader, change the USB cable. Some USB cables are for battery charging only and do not support data transfer.
- At the "**Card types**" section select "**ISO14443-A (Mifare, NTAG)**".
- Then click on "**Configure Device**" tab.



2. CONFIGURE THE SECURITY LEVEL AT WS4 CONTROLLER

- Open the WS4 Web access at <https://www.xprgroup.com/my-ws4/> to configure the security level.
- Go to section “**Settings/Configuration of the reader**”.
- At the “**Mifare/Desfire security**” section set Security level to “**High**”.
- Set the Application ID (AID).

As DESFire cards can be used by several different systems, this number identifies the area of the card reserved for your WS4. You can choose any value between 1 and 16777215.

- Set the Authentication key.

The key should be in 32 hexadecimal characters (0 to 9 and A to F). You can enter the key of your choice or have the system generate one. This key is used to authenticate at the card level, and also to encrypt the data between the card and the reader.

- **Warning, without this key, it would not be possible to read cards already created!**
- **Remember to archive it (for example by making a backup and saving it in a safe place).**

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Configuration of the readers

WIEGAND / HID FORMATS ?

Format 1 :
26 bits: RAW

Format 2 :
26 bits: P[e:2-13] | Code:24b | P[o:14-25]

Format 3 :
42 bits: RAW

Format 4 :
43 bits: RAW

OTHER OPTIONS ?

Keypad code of fixed length : No

Backlight : ON

MIFARE/DESFIRE SECURITY ?

Security level : High

Secure DESFire cards

Application ID (AID) : 1 =1h

Authentication key (32 hex char) :
F48FC3897821CDAE5531048B759EC3D6
[Generate](#)

For security reasons, do not forget to [archive](#) the authentication key in a [safe place](#).

WS4 V2.60 © XPR Group

With Security level set to high, WS4 will grant access only to secure DESFire cards that have been created by the system.

3. CREATE SECURE CARDS

- Click on the **"Users"** tab on the left side menu to open Users screen.
- This screen allows you to create secure DESFire cards using one of the Mifare readers at the installation.
- Click on the **"Create secure cards"** tab.

Home Users Categories Schedules Holidays Doors Settings Operators Technical supervision

List of users

Refresh Cancel batch of cards Create secure cards

You can create up to 2500 users in the installation.

Name	ID	Validity	Last access	First Name	Last Name	Address	City	Country	Category 1	Category 2	Category 3	Card 1	Card 2	Finger-prints	Ev.
test	213	Always	2022-09-05 16:06						Full Access	Full Access	Full Access	52224008	52224008		🔄
test 1	202	Always	2022-06-08 10:03						Full Access	---	---	36066044360162564	36066044360162564		🔄
test 3	206	Always	2022-04-19 12:07						Full Access	---	---	36066044494761988			🔄
test 4	205	Always	2022-04-15 12:45						Full Access	---	---	36066044360406788			🔄
test 5	204	Always	2022-09-05 09:20						Full Access	---	---	36066044360418564			🔄
test 6	203	Always	2022-06-14 08:44						Full Access	---	---	36066044360421380			🔄
test 7	210	Always							Full Access	---	---	16146249059011852792			🔄
test12	302	Always	2022-06-28 09:13						Full Access	Full Access	Full Access	0001567438			🔄

IMPORT USERS

You can import users from a CSV file.

Start wizard...

- Choose the reader where you want to create the secure cards.

Create secure cards

Procedure

1. Choose the reader on which you want to create the secure cards.
2. Click on "Start encoding".
3. A window appears with instructions to follow.

Reader to use :

[Choose the reader]

[Choose the reader]

MTPADP-MHWO 2.0

MTPADP-MHWO 2.1

- Click on the **"Start encoding"** button.

Create secure cards

Procedure

1. Choose the reader on which you want to create the secure cards.
2. Click on "Start encoding".
3. A window appears with instructions to follow.

Reader to use :

MTPADP-MHWO 2.0

Start encoding

- Present the DESFire card to the reader.
- When the card is formatted, the reader will emit a beep.
- After card formatting is completed click on the **"Finished"** button.

Create secure cards
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Present the DESFire cards on the reader


- When the card is formatted, the reader will emit a beep.
- You can then present the next card, and so on...

Number of cards formatted: 0

Finished

4. CREATE USER WITH SECURE CARD

- Go to the **"User"** section and create new user.
- Follow the instructions given at the main screen.
- Click on the icon at the **"Card1"** section and swipe the card in front of the reader.
- Click on the **"Save"** icon.

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New user


GENERAL
?

Full name :

encrypted card user 1

☐ Disabled

☐ This user can acknowledge alarms

Validity

☒ Always valid

From :

?

To :

?

CATEGORIES
?

Category 1 :

FULL ACCESS
▼

Category 2 :

FULL ACCESS
▼

Category 3 :

FULL ACCESS
▼

Enroll a new card

Present a **new** card on one of the readers of the installation

Cancel

Code in Wiegand 26 bit:


PIN code :


Fingerprints

Fingers enrolled: 0

[How can the user delete his own fingerprints?](#)

Card1
?





Details ▼