

Configure Mifare Card Keys and Card Reading

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 Focus

Akuvox ACR-CID01 supports configuring access keys for Mifare cards so they can be securely read by Akuvox door phones and access control terminals.

Note

- Click [here](#) to view the guidance on using ACR-CID01.
- Click [here](#) to download the ACR-CID01 configuration software ACRM.
- The following devices with specific firmware or higher support reading

Mifare Plus and DESFire cards:

- S539: 539.30.10.238;
- S535: 535.30.10.233;
- S538: 538.30.10.705;
- S532: 532.30.10.117;
- X916: 916.30.10.311;
- X915V2: 2915.30.10.228;
- X912: 912.30.11.13;
- X910: 2910.30.10.240;
- R29: 29.30.10.327;
- R28V2: 228.30.10.127;
- R25: 25.30.10.123;(Not Support Reading DESFire)
- R20V5: 320.30.10.226;
- E12V2: 312.30.10.208(Not Support Reading Mifare Plus);
- E16V2: 216.30.12.19;
- E16V3: 416.30.11.206;
- E18: 18.30.10.205(Not Support Reading Mifare Plus);
- A01/02: 101.30.10.103;
- A03: 103.30.10.105;
- A05V2: 205.30.10.111;
- A08: 108.30.10.149;
- A15: 1115.30.10.407.



This article takes X915 as an example.

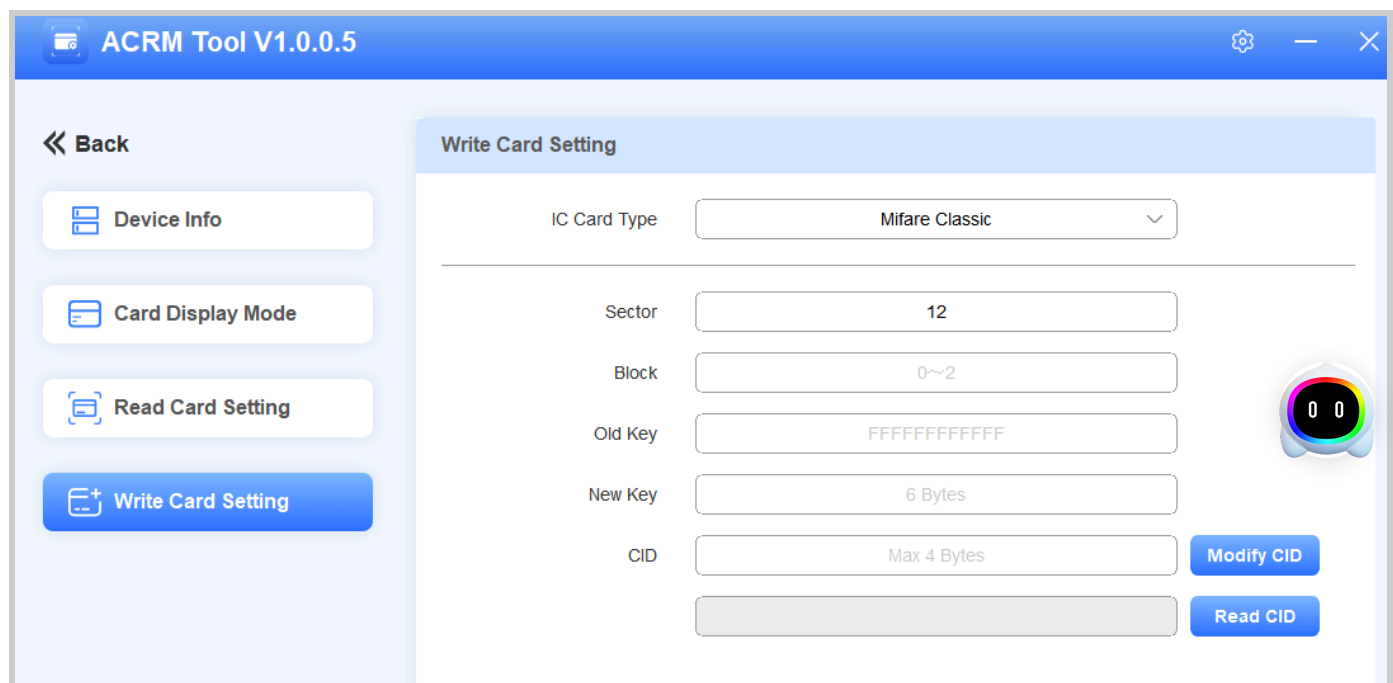
Mifare Classic, Mifare Plus, and DESFire cards are security cards that use key-based access control. Access keys must be configured before the cards can be read by Akuvox devices.

You can purchase the cards from Akuvox or other channels. Akuvox offers Mifare-F08-1K-Keyfod, Mifare-S50-1K-Card, and DESFire-EV3-Card. Contact Akuvox sales team at sales@akuvox.com for details.

Mifare Classic

Configure Card Keys

1. Click **Write Card Setting** on the ACRM tool.
2. Select Card Type as **Mifare Classic**.
3. Enter the sector number(0 to 15) that stores the card data.
4. Enter the block number(0 to 2).
5. Enter the old block key. The key is "FFFFFFFFFFFF"(case insensitive) by default for new cards.
6. Enter the 6-byte new key.
7. Set the output card code(CID) with a maximum of 4 bytes.
8. Click **Modify CID**. "Successfully write card" will pop up.



The screenshot displays the ACRM Tool V1.0.0.5 interface. On the left is a sidebar with navigation options: 'Back', 'Device Info', 'Card Display Mode', 'Read Card Setting', and 'Write Card Setting' (which is highlighted in blue). The main area is titled 'Write Card Setting' and contains the following configuration fields:

- IC Card Type:** A dropdown menu set to 'Mifare Classic'.
- Sector:** A text input field containing the value '12'.
- Block:** A text input field containing the value '0~2'.
- Old Key:** A text input field containing the value 'FFFFFFFFFFFF'.
- New Key:** A text input field containing the value '6 Bytes'.
- CID:** A text input field containing the value 'Max 4 Bytes'.

At the bottom right of the configuration area, there are two buttons: 'Modify CID' and 'Read CID'. A small circular icon with the number '00' is also visible on the right side of the interface.

Then, you need to set up the Mifare card feature and assign the card to a user on the door phone.

Set up the Door Phone

1. Use the device IP to log into its web interface. The initial username and password are admin.
2. Click **Access Control > Card Setting**.
3. Select **Classic** for Mifare Card Encryption.
4. Enter the sector number, block number, and block key that you set.

Mifare Card Encryption

Type	Classic ▼	
Sector/Block	0	/ 0
Block Key		

5. Click Submit.

Assign Card to User

1. Click **Directory > User**.
2. Click **+Add** to add a new user, or click  to modify an existing user's information.
3. Find the **RF Card** part. Click **Obtain** while placing the card on the door phone's card reader.

The card code will display automatically.

RF Card & Bkey

Code		Obtain	Delete
	Add		

If you want to add Bkey, please make sure the BLE function is set to Enable.

4. Click Submit after finishing other settings.

The user can open the door by swiping the card on the door phone.

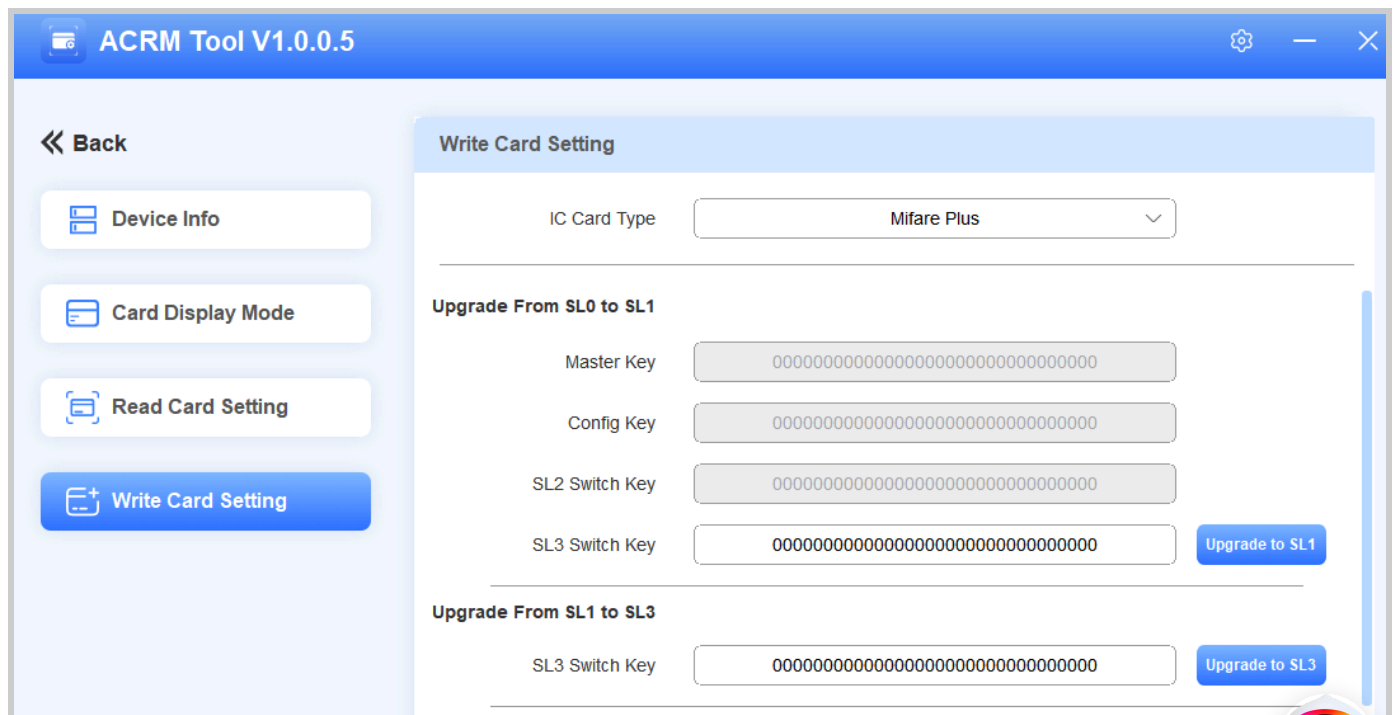
Mifare Plus

Configure Card Keys

1. Click **Write Card Setting** on the ACRM tool.
2. Select Card Type as **Mifare Plus**.
3. Upgrade the card. It must at least be upgraded to SL1 for usage.
 - To upgrade the card from SL0 to SL1, customize the **SL3 Switch Key** with a maximum of 16 bytes. Then, click **Upgrade to SL1**.
 - To upgrade the card from SL1 to SL3, enter the **SL3 Switch Key** you set. Then, click **Upgrade to SL3**.

Note

The card cannot be upgraded from SL0 to SL3.



4. Enter the block number(1 to 128). Do not enter these numbers: "3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 47, 51, 55, 59, 63, 67, 71, 75, 79, 83, 87, 91, 95, 99, 103, 107, 111, 115, 119, 123, 127".
5. Enter the old key. It is 32-bit F(case-insensitive) by default for new cards.
6. Customize the new 16-byte key and 4-byte CID.

7. Click Write Card.

- **Write SL1 CID:** Write the key into the SL1 card.
- **Write SL3 CID:** Write the key into the SL3 card.

The screenshot shows the ACRM Tool V1.0.0.5 interface. On the left is a sidebar with a 'Back' button and four menu items: 'Device Info', 'Card Display Mode', 'Read Card Setting', and 'Write Card Setting' (which is highlighted in blue). The main area is titled 'Write Card Setting'. It contains an 'IC Card Type' dropdown menu set to 'Mifare Plus'. Below this is an 'SL3 Switch Key' field with a long string of zeros and an 'Upgrade to SL3' button. A section titled 'Write Plus Card' contains four rows: 'Block' (1~128), 'Old Key' (16 Bytes), 'New Key' (16 Bytes), and 'CID' (Max 4 Bytes). To the right of the 'New Key' and 'CID' fields are buttons labeled 'Write SL1 CID', 'Write SL3 CID', and 'Read CID' respectively. The 'CID' field has a greyed-out input box below it.

Set up the Door Phone

1. Use the device IP to log into its web interface. The initial username and password are admin.
2. Click **Access Control > Card Setting**.
3. Select **Plus** for Mifare Card Encryption.
4. Enter the block number and key in any of the choices that you set.

Note

The three choices mean that you can use three types of Mifare Plus cards. When swiping a card, as long as one of the choices matches its SL key, the card code in the block you specified will be output.



Mifare Card Encryption

Type	Plus	
First Choice		
Block	*	(1~128)
SL3	*****	
Second Choice		
Block	*	(1~128)
SL3	*****	
Third Choice		
Block	*	(1~128)
SL3	*****	

5. Click Submit.

Assign Card to User

You need to [assign the card code](#) to a user for door opening.

Desfire

Configure Card Keys

Create App

1. Click **Write Card Setting** on the ACRM tool.
2. Set the IC Card Type to **Desfire**. If you need to format the card, enter the PICC and click **Format**. The default is **32-bit 0** for Akuvox Desfire cards.
3. Enter 6-digit hexadecimal as the **App ID**.
4. Set the key count with 14 at most. The key count decides the key ID. For example, if you enter 4, then you can set 4 keys with key ID 0, 1, 2, and 3.
5. Click **Create App**. "Successfully Create App" will pop up.



ACRM Tool V1.0.0.5

Back

Device Info

Card Display Mode

Read Card Setting

Write Card Setting

Write Card Setting

IC Card Type: Desfire

Create App | Create File | Modify Key | Modify CID

PICC Crypto: AES

PICC: 00000000000000000000000000000000

App ID: 0x000000~0xFFFFF

App Crypto: AES

Key Count: 1~14

Format

Create App

Create File

1. Enter the App ID you set on the **Create App** interface.
2. Enter the App Key.
 - If it is an Akuvox Desfire card, it is **32-bit 0** by default.
 - If it is a third-party card, please confirm it with the service provider.
3. Enter the Key ID based on the key count you selected on the **Create App** interface. For example, if the key count is 1, then the Key ID is 0. If it is 2, the Key ID for the first key is 0, the second key is 1.
4. Customize the **File ID** from 0 to 31.
5. Set key permissions. You can grant permissions to specific keys.
Enter the corresponding key ID when you need to read and/or write the CID.
Please note that the **Change Key** function is currently unavailable.
If the key count is 1, you can set all the values to 0.
6. Click **Create File**. "Successfully Created File" will pop up.



ACRM Tool V1.0.0.5

Back

Device Info

Card Display Mode

Read Card Setting

Write Card Setting

Write Card Setting

IC Card Type: Desfire

Create App

Create File

Modify Key

Modify CID

App ID: 0x000000~0xFFFFF

App Crypto: AES

App Key: 00000000000000000000000000000000

Key ID: 0~13

File ID: 0~31

Key Permission Setting

Change Key: 0~13

Read&Write Key: 0~13

Read Key: 0~13

Write Key: 0~13

Create File

After creating the App and File, the encryption of the card is done. If you want to change the App Key and card code, further navigate to the **Modify Key** and **Modify CID** chapters of the [ACRM Tool manual](#).

Set up the Door Phone

1. Use the device IP to log into its web interface. The initial username and password are admin.
2. Click **Access Control > Card Setting**.
3. Select **DESFire** for Mifare Card Encryption.
4. Enter the **App ID** and **File ID** that you set.
5. Enter the **App Key**.
6. Enter the **Key ID** that is granted permission to read the CID.



Mifare Card Encryption

Type	DesFire
App ID	(6 hex numbers)
File ID	(0~31)
Crypto	AES
Key	****
Key Index	(0~11)

7. Click Submit.

Assign Card to User

You need to [assign the card code](#) to a user for door opening.

