

# MCU Command Operation Guide

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# Outline

- How to Use Cmd
- Enroll Action and Flow
- Search Action
- Remove Action

# How to Use Cmd

- The command set only allow UART/USB interface used.



Adobe Acrobat  
Document

- UART – The format command
  - eg. GetImage, EF 01 FF FF FF FF 01 00 03 01 00 05
- USB - Call API function
  - eg. PSGetImage(\*handle, (int)0xFFFFFFFF);
  - reference



SynoAPIEx.dll  
function v3.035

# How to Use Cmd

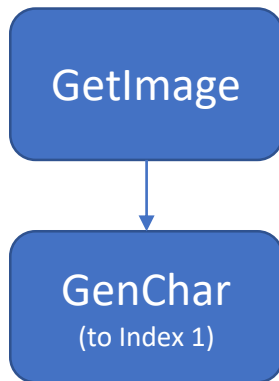
- The examples are using UART communication in this document.
- USB communication are all in the API call function, please reference SynoAPIEx to use the library.

# Enroll Action and Flow

- Enrollment is the most complex action and it will be described step by step as below.
- Concept
  - Get finger image
  - Generate characters
  - Repeat above action several times
  - Register model
  - Store the character result to flash.

# Enroll Action and Flow

- Flows in Cmd Operates



## GetImage:

SEND: EF 01 FF FF FF FF 01 00 03 01 00 05

RESP : EF 01 FF FF FF FF 07 00 03 02 00 0C

[Fail, 02 means no finger detect on sensor]

SEND: EF 01 FF FF FF FF 01 00 03 01 00 05

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the finger image is captured]

## GenChar:

SEND: EF 01 FF FF FF FF 01 00 04 02 01 00 08

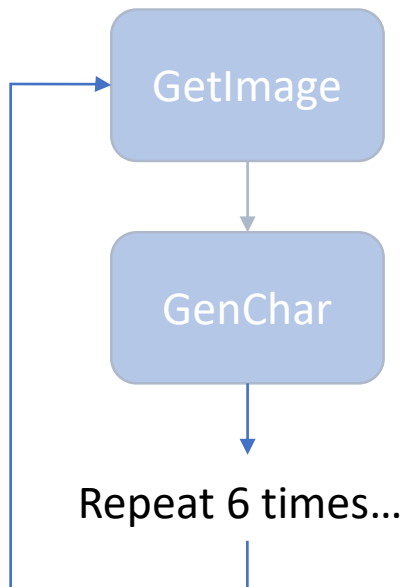
[GenChar index 01 to buffer]

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the character is generated and saved]

# Enroll Action and Flow

- Flows in Cmd Operates

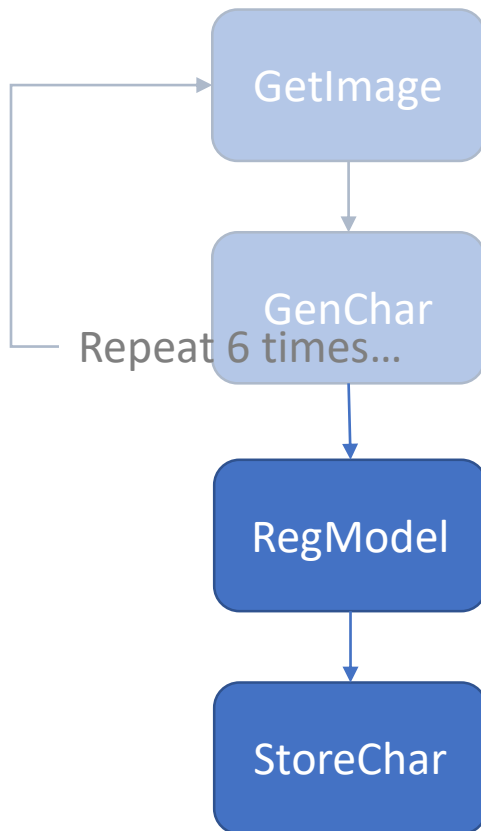


## Repeat 6 times for 1 ID:

```
SEND: EF 01 FF FF FF FF 01 00 03 01 00 05  
SEND: EF 01 FF FF FF FF 01 00 04 02 02 00 09  
SEND: EF 01 FF FF FF FF 01 00 03 01 00 05  
SEND: EF 01 FF FF FF FF 01 00 04 02 03 00 0A  
SEND: EF 01 FF FF FF FF 01 00 03 01 00 05  
SEND: EF 01 FF FF FF FF 01 00 04 02 04 00 0B  
SEND: EF 01 FF FF FF FF 01 00 03 01 00 05  
SEND: EF 01 FF FF FF FF 01 00 04 02 05 00 0C  
SEND: EF 01 FF FF FF FF 01 00 03 01 00 05  
SEND: EF 01 FF FF FF FF 01 00 04 02 06 00 0D  
(Skip Resp. received flow)
```

# Enroll Action and Flow

- Flows in Cmd Operates



## RegModel:

SEND: EF 01 FF FF FF FF 01 00 03 05 00 09

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the model is registered and saved in buffer]

## StoreChar:

SEND: EF 01 FF FF FF FF 01 00 06 06 01 00 01 00 0F

[StoreChar to finger ID number 1]

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, one finger is enroll to ID#1]



# Search Action

- PS\_Search is the command that calls MCU's algorithm to get the comparison result.
- Concept
  - Get finger image
  - Generate characters to buffer1
  - Search command

# Search Action

- PS\_Search is the command that calls MCU's algorithm to get the comparison result.
- Commands
  - Search command Parameters
    - BufferID (default 1)
    - StartPage indicates the start finger ID number
    - PageNum decides the numbers of sequential search.

**Search:** [search fingerprint database from ID#0 to ID#39]

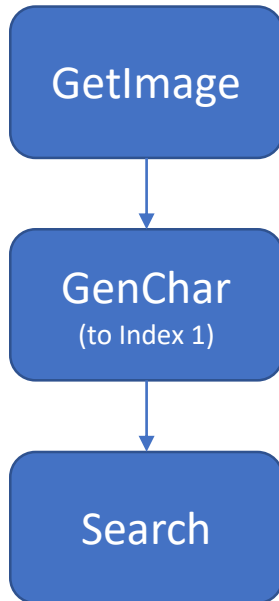
SEND: EF 01 FF FF FF FF 01 00 08 04 01 00 00 00 28 00 36

RESP : EF 01 FF FF FF FF 07 00 07 00 00 01 00 50 00 5F

[Success, the finger ID#1 is matched and got the score 80]

# Search Action

- Flows in Cmd Operates



## GetImage:

SEND: EF 01 FF FF FF FF 01 00 03 01 00 05

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the finger image is captured]

## GenChar:

SEND: EF 01 FF FF FF FF 01 00 04 02 01 00 08

[GenChar index 01 to buffer]

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the character is generated and saved]

## Search: [search fingerprint database from ID#0 to ID#39]

SEND: EF 01 FF FF FF FF 01 00 08 04 01 00 00 28 00 36

RESP : EF 01 FF FF FF FF 07 00 07 00 00 01 00 50 00 5F

[Success, the finger ID#1 is matched and got the score 80]

# Remove Action

- Two commands can delete ID registered.
  - Delete a specific range finger: PS\_DeleteChar
  - Remove all fingers: PS\_Empty

## DeleteChar:

SEND: EF 01 FF FF FF FF 01 00 07 0C 00 05 00 0A 00 23

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, the finger ID#5-14 are deleted]

## Empty:

SEND: EF 01 FF FF FF FF 01 00 03 0D 00 11

RESP : EF 01 FF FF FF FF 07 00 03 00 00 0A

[Success, all the fingers are removed]