

MR5 Command Set

MR5 / MR5-AS

Version: V1.1



1 Command List

Description		Command Code	Response Code
1	Get Version	1B 00 02 25 21 CRC	1C 00 LLen SW "Version String" CRC
2	Get Reader Sn	1B 00 02 25 24 CRC	1C 00 LLen SW "SN" CRC
3	Set Reader Sn	1B 00 12 25 25 "Sn" CRC	1C 00 01 SW CRC
4	Give Up Action	1B 00 02 25 27 CRC	1C 00 01 SW CRC
5	Detect Battery Level	1B 00 02 25 2B CRC	1C 00 02 SW "Level" CRC
6	Set Sleep Timer	1B 00 03 25 2C "Timer" CRC	1C 00 01 SW CRC
7	Select ICC Slot	1B 00 03 25 34 "ICC Slot" CRC	1C 00 01 SW CRC
8	ICC Get Status	1B 00 02 25 35 CRC	1C 00 02 SW "Status" CRC
9	ICC Power On	1B 00 02 25 36 CRC	1C 00 XX SW "ATR" CRC
10	ICC Power Off	1B 00 02 25 37 CRC	1C 00 01 SW CRC
11	ICC Access	1B HLen LLen 25 38 "C-Apdu" CRC	1C HLen LLen SW "R-Apdu" CRC
12	Get Cardholder Info	1B 00 02 25 40 CRC	1C 00 LLen SW "Cardholder" CRC
13	PICC Activate	1B 00 02 35 11 CRC	1C 00 LLen SW "Card_Sn" CRC
14	PICC Deactivate	1B 00 02 35 12 CRC	1C 00 01 SW CRC
15	PICC Rate	1B 00 02 35 13 CRC	1C 00 LLen SW "ATS" CRC
16	PICC Access	1B HLen LLen 35 14 "C-Apdu" CRC	1C HLen LLen SW "R-Apdu" CRC
17	Mifare Auth	1B 00 0A 35 15 "KeyType" "Block" "K0...K5" CRC	1C 00 01 SW CRC
18	Mifare Read Block	1B 00 03 35 16 "Block" CRC	1C 00 11 SW "D0...D15" CRC
19	Mifare Write Block	1B 00 13 35 16 "Block" "D0...D15" CRC	1C 00 01 SW CRC
20	Mifare Increment	1B 00 07 35 18 "Block" "V0...V3" CRC	1C 00 01 SW CRC
21	Mifare Decrement	1B 00 07 35 19 "Block" "V0...V3" CRC	1C 00 01 SW CRC

* HLen: the high byte of the data length.

* LLen: the low byte of the data length.

* CRC: Error Detection Code, checksum with LRC algorithm (xor all bytes)



2 Command Explanation

2.1 Get Version

- **Function:** Request the reader respond version string.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 21 CRC
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Response:

HEX	1C 00 LLen SW "Version String" CRC
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- Version String (ASCII):
ex: 4361726420526561646572204d5235205630312e30302e3033
(Card Reader MR5 V01.00.03)

2.2 Get Reader Sn

- **Function:** Request the reader respond serial number.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 24 CRC
-----	--------------------

Response:

HEX	1C 00 LLen SW "SN" CRC
-----	------------------------

- SN(ASCII): serial number, ex: 30303030303030313638303033393533
(0000000168003953)

2.3 Set Reader Sn

- **Function:** Set the reader respond serial number.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 12 25 25 "SN" CRC
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- SN(ASCII): serial number, ex: 30303030303030313638303033393533
(0000000168003953)

Response:

HEX	1C 00 01 SW CRC
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2.4 Give Up Action

- **Function:** Request the reader to give up any card operation function.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 27 CRC
-----	--------------------

Response:



Correct:

HEX	1C 00 01 SW CRC
-----	-----------------

2.5 Detect Battery Level

- **Function:** Request the reader respond power level.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 2B CRC
-----	--------------------

Response:

HEX	1C 00 02 SW "Power" CRC
-----	-------------------------

- Power: 0x0: low power; 0x1: 1/3 power 0x2: 2/3 power; 0x3: full power

2.6 Set Sleep Timer

- **Function:** Request the reader to set sleeping timer.
- **Applicability:** MR5 / MR5-AS

Command:

Hex	1B 00 03 25 2C "Timer" CRC
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- Timer: 0x0: Never sleep; 0x1~0x1E(1~30): reader will sleep in 1~30 minutes
The default value is 3 minutes.

Response:

HEX	1C 00 01 SW CRC
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2.7 Select ICC Slot

- **Function:** Request the reader to select which IC card slot. Afterwards, all the IC Card operating commands are to selected slot until a command to select another IC or SAM slot.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 03 25 34 "ICC Slot" CRC
-----	-------------------------------

- ICC Slot: 0x0:ICC; 0x1:SAM

Response:

HEX	1C 00 01 SW CRC
-----	-----------------

2.8 ICC Get Status

- **Function:** Request the reader respond that the status of IC card.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 35 CRC
-----	--------------------

Response:



HEX	1C 00 02 SW "Status" CRC
-----	--------------------------

- Status: 0x0: removed; 0x1: Inserted

2.9 ICC Power On

- **Function:** Request the reader to power on (reset) the IC card that be selected. If successful, return the ATR values of this card.

- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 36 CRC
-----	--------------------

Response:

HEX	1C 00 XX SW "ATR" CRC
-----	-----------------------

- ATR: is the answer to reset from IC card

2.10 ICC Power Off

- **Function:** Request the reader to power off the IC card that be selected.

- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 37 CRC
-----	--------------------

Response:

HEX	1C 00 01 SW CRC
-----	-----------------

2.11 ICC Access (APDU response/command)

- **Function:** Request the reader to read/write the IC card that be selected and then send back the response from the IC card (read APDU response/write APDU command).

- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B HLen LLen 25 38 "C-Apdu" CRC
-----	---------------------------------

- C-Apdu = INS CLS P1 P2 Lc D0...Dn Le

Response:

HEX	1C HLen LLen SW "R-Apdu" CRC
-----	------------------------------

- R-Apdu = D0...Dn SW1 SW2

2.12 Get Cardholder Info

- **Function:** Request the reader automaticly to get the cardholder information form ICC and PICC of credit card.

- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 25 40 CRC
-----	--------------------



Response:

HEX	1C 00 LLen SW "Cardholder" CRC
-----	--------------------------------

- Cardholder(ASCII): 0xA1 + card number + 0xB1 + name + 0xC1 + expire date

2.13 PICC Activate

- **Function:** Request the reader to active RF card.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 35 11 CRC
-----	--------------------

Response:

HEX	1C 00 LLen SW "Card Sn" CRC
-----	-----------------------------

- Card Sn: is card serial number of the PICC.

2.14 PICC Deactivate

- **Function:** Request the reader to stop RF card operation.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 35 12 CRC
-----	--------------------

Response:

HEX	1C 00 01 SW CRC
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2.15 PICC Rats

- **Function:** Request the reader to get ATS from RF card.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 02 35 13 CRC
-----	--------------------

Response:

HEX	1C 00 LLen SW "ATS" CRC
-----	-------------------------

- ATS: is answer to select of the PICC.

2.16 PICC Access

- **Function:** Request the reader to read/write the RF card activated and then send back the response from the RF card (read APDU response/write APDU command).
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B HLen LLen 35 14 "C-Apdu" CRC
-----	---------------------------------

- C-Apdu = INS CLS P1 P2 Lc D0...Dn Le

Response:



HEX	1C HLen LLen SW "R-Apdu" CRC
-----	------------------------------

- R-Apdu = D0...Dn SW1 SW2

2.17 MIFARE Auth

- **Function:** Request the reader to specify the memory location of the Mifare card activated and uses the corresponding key for the authentication. After a successful authentication the block be read/write available.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 0A 35 15 "KeyType" "Block" "K0...K5" CRC
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- Key Type:
KeyA: 0x41
KeyB: 0x42
- Block: is the memory location of the Mifare card.
- K0...K5: 6 bytes (HEX), the corresponding key for the authentication.

Response:

HEX	1C 00 01 SW CRC
-----	-----------------

2.18 MIFARE Read

- **Function:** Request the reader to read block of Mifare card activated after a successful authentication.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 03 35 16 "Block" CRC
-----	----------------------------

- Block is the memory location of the Mifare card.

Response:

HEX	1C 00 11 SW "D0...D15" CRC
-----	----------------------------

- D0...D15: 16 bytes(HEX), the contents of a block from Mifare card.

2.19 MIFARE Write

- **Function:** Request the reader to write the contents of a block of Mifare card activated after a successful authentication.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 13 35 16 "Block" "D0...D15" CRC
-----	---------------------------------------

- Block is the memory location of the Mifare card.
- D0...D15: 16 bytes(HEX), the contents of a block of Mifare card.

Response:

HEX	1C 00 01 SW CRC
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2.20 MIFARE Increment

- **Function:** Request the reader to increase the value of a block of Mifare card activated after a successful authentication.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 07 35 18 "Block" "V0...V3" CRC
-----	--------------------------------------

- Block is the memory location of the Mifare card.
- V0...V3: 4 byte(HEX), the maximum size of a value is 4 byte including sign bit.

Response:

HEX	1C 00 01 SW CRC
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2.21 MIFARE Decrement

- **Function:** Request the reader to decrease the value of a block of Mifare card activated after a successful authentication.
- **Applicability:** MR5 / MR5-AS

Command:

HEX	1B 00 07 35 19 "Block" "V0...V3" CRC
-----	--------------------------------------

- Block is the memory location of the Mifare card.
- V0...V3: 4 bytes(HEX), the maximum size of a value is 4 byte including sign bit.

Response:

HEX	1C 00 01 SW CRC
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3 Status Word (SW) Explanation

SW	Message
0x0	STATUS_OK
0x1	STATUS_NOT_SUPPORT_COMMAND
0x2	STATUS_PARAMETER
0x3	STATUS_CRC
0x4	STATUS_TIMEOUT
0x12	STATUS_SC_REMOVED
0x13	STATUS_SC_POWER_ON_FAIL
0x14	STATUS_SC_APDU_FAIL
0x15	STATUS_SC_POWER_OFF_FAIL
0x16	STATUS_SC_TYPE_NOT_SUPPORT



Revision History:

Revision	Date	Description	By
V1.0	2016/10/12	Created	Alan
V1.1	2017/3/15	Add "Set Reader Sn" command.	Alan