

Application Note

MorphoAccess® SIGMA Family Terminal
iClass card reading timings



MorphoAccess® SIGMA Family & MorphoWave® Compact

Application Notes: iClass
card reading timings



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Osny, France

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Revision History

The table below contains the history of changes made to the present document.

Version	Date	Description
01	2016	First version
02	April 2017	Add the MorphoAccess® Sigma Extreme product
03	December 2017	Update company name (IDEMIA)
04	July 2018	Add MorphoWave® Compact support

Introduction

This application note is available for all iClass card types supported by all MASIGMA and MorphoWave Compact terminals:

- MorphoAccess® SIGMA Series,
- MorphoAccess® SIGMA Lite Series
- MorphoAccess® SIGMA Lite+ Series and
- MorphoAccess® SIGMA Extreme Series.
- MorphoWave® Compact Series.

The goal of this application note is to provide the optimum value of **sc_tlv_iclass_numblock key** to reduce the reading time. This study has been done for iClass cards according to all MASIGMA configurations (ID, ID+Template, ID+PIN, etc.) with PKComp v2 template format.

With MA Sigma terminal, Data are stored in tagged structures (TLV).

Tag	Length	Value
1 byte	2 bytes	L bytes
Data identifier	Value length (Little Endian)	Data

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ID:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by 3 padding bytes.

So, 69 bytes is read by MASIGMA terminal for ID configuration.

The optimum value of sc_tlv_iclass_numblock key is 9 .
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ID+TEMPLATE:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIO_TAG 1 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- BIO_TAG 2 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by 5 padding bytes.

So, 591 bytes is read by MASIGMA terminal for ID+TEMPLATE configuration.

The optimum value of sc_tlv_iclass_numblock key is 74 .

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ID+TEMPLATE+DURESS:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIO_TAG 1 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- BIO_TAG 2 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- BIO_DURESS tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by 2 padding bytes.

So, 852 bytes is read by MASIGMA terminal for ID+TEMPLATE (+DURESS) configuration.

The optimum value of **sc_tlv_iclass_numblock** key is **107**.

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ID+TEMPLATE+PIN:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIO_TAG 1 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- BIO_TAG 2 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- PIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by 3 padding bytes.

So, 609 bytes is read by MASIGMA terminal for ID+TEMPLATE+PIN configuration.

The optimum value of sc_tlv_iclass_numblock key is 77 .

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ID+TEMPLATE+PIN+DURESS:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIO_TAG 1 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- BIO_TAG 2 tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- PIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- BIO_DURESS tag : 261 bytes
 - 3 bytes (tag and length)
 - 1 byte (ID template)
 - 2 bytes (length of current template)
 - 255 bytes (maximum value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)

So, 870 bytes is read by MASIGMA terminal for ID+TEMPLATE (+DURESS)+PIN configuration.

The optimum value of **sc_tlv_iclass_numblock** key is **109**.

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ID+PIN:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- PIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by a padding byte.

So, 87 bytes is read by MASIGMA terminal for ID+PIN configuration.

The optimum value of **sc_tlv_iclass_numblock** key is **11**.

ID+BIOPIN:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIOPIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by a padding byte.

So, 87 bytes is read by MA Sigma terminal for ID+BIOPIN configuration.

The optimum value of **sc_tlv_iclass_numblock** key is **11**.

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ID+BIOPIN+PIN:

Several data items are encoded in cards,

- ID tag : 27 bytes
 - 3 bytes (tag and length)
 - 24 bytes (value)
- NAME tag : 23 bytes
 - 3 bytes (tag and length)
 - 20 bytes (value)
- BIOPIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- PIN tag : 18 bytes
 - 3 bytes (tag and length)
 - 15 bytes (value)
- EXPIRY_DATE tag : 15 bytes
 - 3 bytes (tag and length)
 - 12 bytes
- CARD_MODE tag : 4 bytes
 - 3 bytes (tag and length)
 - 1 byte (value)
- Followed by 7 padding bytes.

So, 105 bytes is read by MASIGMA terminal for ID+BIOPIN+PIN configuration.

The optimum value of sc_tlv_iclass_numblock key is 14 .
