

# MorphoAccess® 5G Series



Application note - L1  
Legacy Mode  
limitations

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## Introduction

This document describes limitation of the MorphoAccess® SIGMA and SIGMA Lite Series terminal configured in L-1 Bioscrypt Legacy mode compare to L-1 Bioscrypt (4G) terminals.

## Generality

MorphoAccess® SIGMA and SIGMA Lite Series terminal are not backward compatible to 4GLite product following area:

- MorphoAccess® SIGMA and SIGMA Lite Series terminal are not supported in SALite software.
- MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support 4GLite specific features. Following 4GLite specific features are not supported:
  - **Secure Control:** This is specific product developed to work as secure door control system to control multiple (max two) doors. This product interface with 4GLite terminal using RS-485 communication channel with custom protocol and controls doors based on command sends by 4GLite terminal.
  - **Configurable Wiegand ID:** In 4GLite terminal, administrator can assign three identifiers (User ID, extended ID and CSN) per user. This feature allows selecting one of above three identifiers as desired identifier to be used while sending out Wiegand string as event of access control result.
  - **Card only enrolment (user without biometric):** This feature allows storing card CSN as user identifier in user record without biometric information in terminal database.

## Terminal configuration

### Serial Command Support

MorphoAccess® SIGMA and SIGMA Lite Series terminal support limited number of serial commands mentioned in 2015\_2000012415\_v1 MA5G - L1 Legacy - Command Support Matrix document.

For not supported command, MorphoAccess® SIGMA and SIGMA Lite Series terminal return “not supported command” error “-1”. Customer application calling not supported command needs to handle this error at their application level in order to avoid abnormal behavior.

### Language customization

Language customization through SecureTranslate tool for MorphoAccess® SIGMA Series terminal is not supported. Instead Qt Linguist tool (refer document SSE-0000100926-01 - MA SIGMA - Application note - Messages Translation.pdf) can be used to create custom language file. Custom language file created by Qt Linguist tool can be uploaded on MorphoAccess® SIGMA Series terminal using SecureAdminTM. Once language file is uploaded to terminal it becomes current language of terminal. User can select other language from terminal main screen. Default languages supported are English, French, Arabic and Spanish.

MorphoAccess® SIGMA Lite Series terminal does not support multiple languages.

## Database

### Information only

Following table describes user and log capacity of 4G, 4GLite, MorphoAccess® SIGMA and SIGMA Lite Series terminal.

Terminal Type	User/Template capacity	Transaction Logs capacity
4G	500K Templates in 1:1 mode 50K Template in 1: N with binning 50K Template in 1: N without binning	1000 K
4GLite	25K Templates in 1:1 mode 5K Templates in 1:N mode	100 K
MorphoAccess® SIGMA	100K Users (3 templates per user)	1000 K
MorphoAccess® SIGMA Lite	10K Users (3 templates per user)	1000 K

## SecureAdmin™ & SecureSDK

### Information only

MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode is supported by SecureAdmin & SecureSDK version 4.1.19.0.0.0.0 and later.

MorphoAccess® SIGMA Lite Series terminal in L-1 Bioscrypt Legacy mode is supported by SecureAdmin & SecureSDK version 4.1.20.0.0.0.0 and later.

## Audio

MorphoAccess® SIGMA Series terminal does not support volume configuration separately for each file but it has only global volume configuration.

MorphoAccess® SIGMA Series terminal does not support multiple audio files per event but only single file per event.

MorphoAccess® SIGMA Lite Series terminal does not support speaker Audio feature. LED and buzzer support is available.

## Communication – Serial channel

In L-1 Bioscrypt terminal, RS232 and RS485 serial channels are supported. MorphoAccess® SIGMA series terminal supports RS422 and RS485 serial channel. MorphoAccess® SIGMA Lite series terminal supports only RS485.

L1 serial commands for file transfer are not supported over serial channel in MorphoAccess® SIGMA and SIGMA Lite Series terminal. Use Ethernet or WIFI IP communication channel instead of serial for file transfer.

## Communication – USB AUX channel

In MorphoAccess® SIGMA and SIGMA Lite Series terminal, it is not possible to communicate using USB AUX communication channel which is normally used for First Boot Configuration at site. Please use First Boot Configuration feature in MorphoAccess® SIGMA or USB script with MBTB in SIGMA Lite Series if IP information is not available through DHCP server.

## Enrolment of Users

User enrolment in L-1 Bioscrypt Legacy mode on MorphoAccess® SIGMA and SIGMA Lite Series terminal is not supported.

To enrol new user, Administrator can perform enrolment using SecureAdmin.

## Smartcard Encoding

MorphoAccess® SIGMA and SIGMA Lite Series terminal in L-1 Bioscrypt Legacy mode do not support smartcard encoding. Only smartcard reading is supported. Encoding of smartcard could be done with SecureAdmin with other 4G terminals.

## Template Type support

MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support template type configuration. MorphoAccess® SIGMA and SIGMA Lite Series terminal in L1 legacy mode support four types of templates, BUR, TEM, VUR which are created through L-1 Bioscrypt terminals; and Morpho PKLite templates, which are created through MSO sensor. Users can transfer these templates from SecureAdmin™ database to terminal.

Below table describe different type of template supported in MorphoAccess® SIGMA and SIGMA Lite Series terminal.

Template Type	Identification	Authentication
BUR	✓	✓
PKLite	✓	✓
VUR	X	✓
TEM	X	✓
TMS	X	X
MTM	X	X

L-1 Bioscrypt terminals can operate in 1:1 or 1: N mode (one at a time based on terminal template type configuration). MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support terminal template type configuration. To achieve 1:1 or 1: N mode functionality in MorphoAccess® SIGMA and SIGMA Lite Series terminal, administrator can change user control trigger settings.

## Generic L1 Behaviour

MorphoAccess® SIGMA and SIGMA Lite Series terminal behave like a generic L1 terminal and NOT customized L1 terminal.

## Number of Fingers per User

In L-1 Bioscrypt terminal, maximum fingers (indexes) per user are 255 for TEM/TMS/MTM template type and 16 for VUR/BUR template type.

Whereas MorphoAccess® SIGMA and SIGMA Lite Series terminal support 3 fingers per user.

In MorphoAccess® SIGMA and SIGMA Lite Series terminal, on uploading more than 3 fingers per user using SecureAdmin™, an error -92 “more than 16 VUR” is returned.

## Duress finger

In L-1 Bioscrypt terminal, duress finger is assigned to finger that means per users there can be more than one duress fingers.

Where as in MorphoAccess® SIGMA and SIGMA Lite Series terminal, there can be single duress finger per user. Because of this limitation when adding more than one duress finger per user, MorphoAccess® SIGMA and SIGMA Lite Series terminal return error “-2600” “Duress finger with this template ID already exists”.

## Templates retrieval

It is not possible to extract templates from MorphoAccess® SIGMA and SIGMA Lite Series terminal using SecureAdminTM or SecureSDK. Templates retrieving feature is disabled for MorphoAccess® SIGMA and SIGMA Lite Series terminal in SecureAdminTM.

Non biometric information can be retrieved back from terminal like name, id, admin level.

## User Admin Level

### Information only

Following is the User Admin level (User Type) mapping between MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode and L-1 Bioscrypt terminals.

Template User Type in L1 terminals	Template User Type in MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode	Remarks
User Id = 0	No Admin = 0	
V-Station Enroll Id = 1	DB Admin = 1	
V-Station Admin Id = 2	Full Admin = 2	
Prox Enroll Id = 3	No Admin = 0	Prox Enroll feature is not supported on MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode. So this user type is mapped to No Admin.
Prox Delete Id = 4	No Admin = 0	Prox Delete feature is not supported on MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode. So this user type is mapped to No Admin.
Limited V-Station Enroll Id = 5	DB Admin = 1	Limited V-Station Enroll Id in L1 legacy terminals allows the user to perform enrolment without changing the security levels. Mapping this user type to Database Admin will allow the user to change the security levels in MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode.

When SecureAdmin™ transfers the template to MorphoAccess® SIGMA Series terminal then Template User Type is changed as per above table by terminal before storing in database.

When SecureAdmin™ retrieves the information back, user type may be different than one in SecureAdmin™ database.

## Application note - L1 Legacy Mode limitations

For example, if template user type has been mapped from Prox Enroll Id to No Admin by MorphoAccess® SIGMA Series terminal firmware so on retrieving the information back firmware will return No Admin as Template User Type.

In SecureAdmin™, this is only informational data and it does not have any impact on SecureAdmin™ database and user control operation.

## LCD GUI login workflow changes

In MorphoAccess® SIGMA Series terminal LCD GUI login workflow (menu access policy) is different as compared to L-1 Bioscrypt terminal.

MorphoAccess® SIGMA Lite Series terminal does not support local administration menu so login options are not available for MorphoAccess® SIGMA Lite Series terminal.

L1 Bioscrypt terminals restrict login into management menu based on user security level while MorphoAccess® SIGMA Series allow login into management menu but restrict access to different menu based on user security level.

Following is the mapping for LCD login options between MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode and L-1 Bioscrypt terminals:

LCD Login mode in L-1 Bioscrypt terminals	LCD Login mode in MorphoAccess® SIGMA Series terminal in L-1 Bioscrypt Legacy mode	Remarks
All users with password = 0	Password Only = 0	
All Users + Password + Biometric = 1	ID + Biometric + Password = 2	
Admin Users + Password + Biometric = 3		
Admin Users + Password = 2	ID + Password = 1	
NA	ID + Biometric = 3	New introduces in MASIGMA, SecureAdmin is able to manage this value.

Note: In MorphoAccess® SIGMA Series terminal, an admin user is identified according to its security level and user is allowed to access different management menu as per its security level.

- For Password only login mode all types of users with password has full access of management menu.
- User having admin security level has full access of management menu.
- User having DB Admin security level has access to Information and User management menu.
- User having No admin security level has access to Information menu.



## User Template Expiry Check Mode

L-1 Bioscrypt terminal database and corresponding distant command has below two fields for expiry date per user and expiry date is only validated if expiry check mode is enabled.

- Expiry check mode
- Expiry date

In MorphoAccess® SIGMA and SIGMA Lite Series terminal, terminal database has only “Expiry date” field per user, and global terminal setting to enable/disable expiry date check functionality. Terminal setting is always enabled in L1 mode. Due to single field in database, MorphoAccess® SIGMA and SIGMA Lite Series terminal do not preserve expiry date once expiry date check mode is disabled (to be compatible with L1 expiry check workflow). E.g.

- When user expiry check mode is set to disabled by SecureAdmin or SecureSDK then the MorphoAccess® SIGMA and SIGMA Lite Series terminal change the expiry date to infinite date (0,0,0) in database to allow expiry date check to bypass during user control operation.

Because of this, when expiry date check mode is enabled, then administrator needs to enter expiry date value again (per user). In L1 terminal, it is not required to set date value again if mode is changed from disable to enable.

## Verification and Identification Workflow

Verification and Identification workflows in MorphoAccess® SIGMA and SIGMA Lite Series terminal are not backward compatible. It's the similar as 4G but sequence is different from MorphoAccess® SIGMA terminal and SIGMA Lite Series.

For e.g. 4G terminal performs user control in sequence of expiry date check, access rule check, biometric check, access schedule check and PIN check. In MorphoAccess® SIGMA and SIGMA Lite Series terminal, sequence is biometric check, PIN check, access rule check, expiry date check and access schedule check.

You can refer to section “Access Control”, in MorphoAccess® SIGMA and SIGMA Lite Series Administration Guide to learn more about workflow for Authentication and Identification.

## Access Rule

### Information only

L-1 Bioscrypt terminal has below two access rules per user:

- Prox access rule
- Smart card access rule

MorphoAccess® SIGMA and SIGMA Lite Series terminal has one access rule field. So one of the access rule field is not preserved. MorphoAccess® SIGMA and SIGMA Lite Series terminal store Prox rule in Prox product and smart card rule in smartcard product type. In case of base product, user access rule is always set to NONE (i.e. in base product information of both rules are not preserved).

Above limitation is applicable for L1 distant command 0x098E.

## Device Error Log (i.e. L1 Device Event log)

### Information only

In L-1 Bioscrypt terminal, event log file is created date wise that means one file per day.

MorphoAccess® SIGMA and SIGMA Lite Series terminal, FIFO is implemented for logging and two files are created. If one file reaches its maximum capacity, then logs are added in second file. That means only two files are present at any time for error log.

To maintain backward compatibility with L1 event log distant commands,

- MorphoAccess® SIGMA and SIGMA Lite Series terminal return hardcoded date for event log file (that is current date of device). SecureAdminTM can download event log file in an encrypted .zip file format from terminal.
- Since only two FIFO files are created, it is not required to delete event log files. Therefore, L1 distant command "BII\_Delete\_Event\_Log\_Files (0x083C)" to delete event log files is removed in MorphoAccess® SIGMA and SIGMA Lite Series terminal.

## Template Add and Delete Handling

### Information only

From end user, no changes apart the time to execute the command and more transaction logs.

L-1 Bioscrypt terminal are template based (i.e. template add or delete) and MorphoAccess® SIGMA and SIGMA Lite Series terminals are user based (i.e. user add or delete).

For instance in MorphoAccess® SIGMA and SIGMA Lite Series terminals, if user with ID=1 exists with 1 template and 2nd template for the same user is added then terminal shall first delete user and add again with two templates. So transaction log shall contain 1st entry of delete user with ID=1 and then 2nd entry of add user with ID=1. Same behaviour shall be observed in deletion of single template of an existing user also (i.e. first delete user and then add user).

## Polling Data

In L-1 Bioscrypt terminal, polling mode can be enabled or disabled per user control trigger source i.e. polling enabled for keypad but disabled for Wiegand and vice versa.

While in MorphoAccess® SIGMA and SIGMA Lite Series terminal, polling mode can be activated using a single parameter. That means if polling is enabled then User ID, from all enabled trigger source (Keypad, Smartcard, external port, Wiegand, biometric identify) is put into polling buffer.

Legacy polling distant commands (0x0782, 0x0783, 0x0784) are available with limitation. Limitation is enabling either Keypad or Wiegand polling shall enable polling mode for all user control trigger source.

## User access Rule behaviour (BIO check value)

4G access rules do not work the same way on MorphoAccess® SIGMA and SIGMA Lite Series terminal.

**In L-1 Bioscrypt terminal, user rule for one user is “logical AND” operation of device settings and user rule setting. E.g.:**

- If User rule is “Keypad + BIO” but device biometric is disabled, then for that user biometric check is not performed.
- If User rule is “Keypad” only and device biometric is enabled then also for that user biometric check is not performed.

**In MorphoAccess® SIGMA and SIGMA Lite Series terminal, user rule for one user is combination of device setting and user rule setting. E.g.:**

- If User rule is “Keypad + BIO” and device biometric is disabled, then also for that user biometric check is performed (“Logical OR” operation).
- If User rule is “Keypad only” and device biometric is enabled, then also for that user biometric check is performed (“Logical OR” operation).

Because of above change in access rule workflow change, to achieve L-1 Bioscrypt Legacy use-case of disabling biometric check for certain user, follow below procedure:

1. Disabled device biometric check
2. Enable biometric check in user rule for all the user
3. Disable biometric check in user rule of user for whom biometric check needs to be bypassed

Above workflow is achieved in L-1 Bioscrypt Legacy terminal by just disabling biometric check for users for whom biometric checks needs to be bypassed and for all other users keep user rule to default.

## Smartcard product access rule priority setting between Threat Level and User access rule

In L1 smartcard terminal, there is a configuration for priority setting between Threat Level based access rule and user based access rule. During verification terminal retrieves first higher priority access rule and if higher priority access rule is set to None, then it retrieves lower priority access rule (i.e. access rule fallback if higher priority access rule is none) and follow it.

MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support this access rule priority setting so it follows [User access Rule behaviour](#).

## Threat Level access rule and Identification workflow

### Information only

In L-1 Bioscrypt Smartcard terminal, user identification attempt fails with Invalid access rule error if threat level based access rule is enabled and set to other than NONE. But at the same time, same user can enter ID thru keypad to get access.

MorphoAccess® SIGMA and SIGMA Lite Series terminal do not follow above behavior as there is no valid use case of not allowing identification but allowing keypad authentication for Threat Level based access rule.

It is still possible to be compliant with this workflow in MorphoAccess® SIGMA and SIGMA Lite Series terminal, by disabling Identification. Identification mode is disabled by deactivating “Biometric trigger event”.

## Multiuser Workflow Change

### Information only

Multiuser workflow is changed in MorphoAccess® SIGMA and SIGMA Lite Series terminal.

If multiuser feature is enabled, then two different users need to be identified before Access Granted. If same user is detected for the second time, then Access is denied and workflow ends in 4G L-1 Bioscrypt terminal. While, on MorphoAccess® SIGMA and SIGMA Lite Series terminal if same user is detected second time, terminal again asks second user to verify.

## User Access Rule Behaviour (BIO reference value)

### Information only

In L-1 Bioscrypt terminal, certain smartcard user rules define reference source of data. E.g. For “Card Only” and “Card + Bio on device” smartcard user rule, corresponding user record is searched in terminal database and not on smartcard to speed up user control operation.

Whereas in MorphoAccess® SIGMA and SIGMA Lite Series terminal user record is always searched on smartcard first (for smart card triggered user control operation) and if not found on card then record is searched in terminal database.

Because of this change of behaviour, smartcard access rule “Card + Bio on device” and “Card + Bio on card” are same on MorphoAccess® SIGMA and SIGMA Lite Series terminal.

From end user, no changes apart the time to complete user control operation.

## Blank Card Use case

### Information only

For SmartCard without any data (Blank Card), card serial number is used as ID (as PROX).

In L-1 Bioscrypt terminal, blank card works only if user access rule is either “card only” or “card + bio on device”.

In case of MorphoAccess® SIGMA and SIGMA Lite Series terminal due to [User access rule behavior change](#), blank card works for “None” or “Card only” or “Card + Bio on card” or “card + Bio on device” user access rule.

## Duress Finger Detection Workflow

### Information only

In case of L-1 Bioscrypt terminal, when duress finger is detected then only single event is generated that is duress finger event.

In case of MorphoAccess® SIGMA and SIGMA Lite Series terminal, when duress finger is detected then two events are generated. First one is duress finger event and then user control event is generated (pass or fail based on final result).

Behavior is different from application (SDK and controller) point of view: Two different events are generated and send to external controller. So controller need to handle this two events coming in short time.

## Extended ID feature (Wiegand ID length)

[Note: No impacts on end user and administrator, only on SDK and developers]

### Maximum Extended ID Length in bits

MorphoAccess® SIGMA and SIGMA Lite Series terminal supports 512 bits extended id for all supported templates types which is not the case with 4G terminal.

Following table shows L1 Extended ID limitation for 4G terminal as per template type

Template Type	Max Extended ID value in template (in bits)
TEM/VUR	64
BUR	512

### TEM Template + Password/Extended ID feature

MorphoAccess® SIGMA and SIGMA Lite Series terminal allows Password verification and Extended ID feature at the same time which is not the case with 4G terminal.

## GPIO

Only following GPI triggered actions are allowed in MorphoAccess® SIGMA and SIGMA Lite Series terminal in L-1 Bioscrypt Legacy mode:

- Delete template
- Reboot device
- Alarm

Combined configuration of external input line is not available in MorphoAccess® SIGMA and SIGMA Lite Series terminal; i.e. GPIO+1 is not available only GPIO, GPI1 and GPI2 are available. Same is the case with 'External output lines'. Combined external output lines are not available.

MorphoAccess® SIGMA Lite Series terminal supports only two GPI and two GPO lines.

## User Interface

- MorphoAccess® SIGMA and SIGMA Lite Series terminal store single image file as wallpaper.
- MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support company logo/idle mode slide show.
- Graphical themes are not supported by MorphoAccess® SIGMA and SIGMA Lite Series terminal.
- Font size and style customizations are not supported in MorphoAccess® SIGMA and SIGMA Lite Series terminal
- Audio file size limit is set to 500KB in MorphoAccess® SIGMA Series terminal
- In MorphoAccess® SIGMA Lite Series terminal in L1 legacy mode, only for following MMI is configurable from LED Table
  - Idle Group - Waiting state
  - Verify Group – Remove finger state
  - Verify Group – Pass state
  - Verify Group – Fail state
  - TOM Group – TOM state
  - Tamper/SDAC Group – Error state
- In MorphoAccess® SIGMA Lite Series terminal in L1 mode, due to conversion from “L1 MMI (LED + Buzzer) configuration” to “standard mode configuration”, actual MMI play duration may be higher (in certain cases) than specified duration.  
For example, if MMI (LED/Buzzer) is set to play for duration = 1150 milliseconds and internal = 2350 milliseconds then actual play duration will be 1174 milliseconds with interval of 2348 milliseconds. Due to this change when configuration is retrieved back from terminal returned value may be different compared to configured value.
- In MorphoAccess® SIGMA Lite Series in L1 mode, idle MMI (LED + Buzzer) does not behave same way as L1 terminal if duration is not infinite. For example, if idle MMI (LED + Buzzer) is not infinite then it is stopped after finite duration and it is not played again.

## Firmware Upgrade

L-1 distant commands to upgrade the firmware are not supported by MorphoAccess® SIGMA and SIGMA Lite Series terminal.

In MorphoAccess® SIGMA and SIGMA Lite Series terminal, Firmware upgrade is allowed only through a specific utility provided by Morpho and available in SecureAdminSuite (4.1.20 and later).

## Removed features

- MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support feature 'Prox card enrolment' which allow enrollment in database via specific Prox card.
- MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support feature 'Prox card delete' which allow delete of user from database via specific Prox card.
- MorphoAccess® SIGMA and SIGMA Lite Series terminal do not support 'Limited Enrol Admin' feature.
- “Next Verification bypass” configuration of existing L1 products is not available in MorphoAccess® SIGMA and SIGMA Lite Series terminal. When feature is enabled next single access control is OK.
- It is not possible to control MorphoAccess® SIGMA and SIGMA Lite Series terminal LEDs through external GPI lines used for controller feedback. There is no customer impact for this as terminal plays LEDs as per result received from controller.

## Release Note

Please check the release note of your version of firmware, for latest information about compatibility with L-1 Bioscrypt 4G Terminals.