



EMV TwoFour

Easy migration from M/Chip 2 to 4

One for all! Enjoy the ease-of-use provided by the brand new member of the EMV Y family from Sagem Orga: EMV TwoFour! EMV TwoFour is the perfect product when it comes to migrating from M/Chip 2 to M/Chip 4. Thanks to the innovative TwoFour feature of EMV TwoFour upgrading from M/Chip 2 to M/Chip 4 does not require a complete re-

issuance of the the card base. EMV TwoFour supports both M/Chip Lite 2.1 (based on EMV 96) and M/Chip 4 Lite (based on EMV 2000) specifications from MasterCard.

EMV TwoFour

Key features at a glance:

- Support for M/Chip 2.1 and M/Chip 4 supported on one chip
- TwoFour feature: Post-issuance functionality to switch from M/Chip 2.1 to M/Chip 4
- Standardized personalization according to EMV CPS
- Flexible support for added value application:
 - SmartyPlus Toolbox (loyalty, data storage, physical access, eGovernment, ...)
 - Welcome Real-time capable

The TwoFour feature - migration made easy ...

EMV TwoFour has been designed to help issuers easily migrate from M/Chip 2.1 to M/Chip 4. The TwoFour feature enables issuers to convert their cards in the field from a M/Chip Lite 2.1 card to a true M/Chip 4 product. This is done by simply updating the card via the normal secure scripting channel. No need to replace cards - no extra cost. In addition this does not only secure the investments already made, but it also allows to start issuing new cards even before the network and host systems have been updated. Once the backend systems are ready the TwoFour feature comes into play quickly upgrading the card portfolio to become fully M/Chip 4 compliant. The chip can be configured either during initialization or personalization to be used as M/Chip Lite 2.1 (v2000 or v2003) or M/Chip 4 (with or without possibility to switch during user phase).

Cutting-edge technology compliant with any existing EMV infrastructure

Another feature of EMV TwoFour is to bring you the latest improvements in technology and security while being compliant with your existing EMV infrastructure of any kind. Nowadays, as most of the M/Chip 2.1 products of the market are based on old technology, they've become nearly obsolete considering costs, performances and security. Based on a brand-new component from Atmel and the last evolutions of the well-known OPUCE OS from Sagem Orga, EMV TwoFour allows you to improve your performance without major investment.

Reliability and security

Indeed, EMV TwoFour offers a new implementation of the "old" specifications M/Chip 2.1, with the latest and best security features fueled by Sagem Orga's experience in the development of Common Criteria evaluated operating systems. This product is cast-evaluated and relies on cryptographic hardware functionalities of Atmel component (DES, CRC, random generation) and protec-

tion against all the known attacks (DPA, SPA, fault attack, etc.).

Flexibility through standardized personalisation

As usual with Sagem Orga products EMV TwoFour is compliant with Common Personalisation Specifications (EMV CPS), the standard defined by EMV for personalization. Through this, switching to new card products in future becomes cost efficient and simple, because the existing processes can be re-used.

Added value applications

EMV TwoFour offers a wide range of built-in functionalities whether it is the SmartyPlus Toolbox for application design, secure authentication methods or data storage services. The highly customizable application functions allow support for almost any loyalty program including the world's largest loyalty schemes such as Welcome Realtime XLS and Mastercard's Card Authentication Program (CAP) are also part of the built-in application package.

■ Specifications

Chip

- ATMEL AT90SC9604RU (15 µm technology)
- 96K ROM
- 4K EEPROM
- 2K RAM

Interface

- Contact only (ISO 7816)
- Protocol T=0
- Direct convention
- PPS supported (up to 115.200bit/s)

Applications in ROM

- MasterCard M/Chip Lite 2.1
- MasterCard M/Chip 4 Lite
- SmartyPlus Toolbox (loyalty, data storage, physical access, transportation, eGovernment, ...)

Operating System

- Sagem Orga Opuce

Supported Specifications

- MasterCard M/Chip Lite - July 2000 (based on EMV 96)
- MasterCard M/Chip Lite 2.1 - July 2003 (based on EMV 2000)
- MasterCard M/Chip 4 Card Application Specifications for Debit and Credit v1.1
- MasterCard CAP
- Visa DPA
- EMV 96 v3.1.1
- EMV 2000 v4.1
- EMV Card Personalization Specification v1.0 (Common Personalization)
- Welcome Real-time XLS compliant

Security

- CAST
- SDA supported
- Hardware: 3DES, CRC, random generation
- Software: Sagem Orga OPUCE secure OS