



**MASKTECH**  
DNA for ID solutions

# MTCOS® eHealth

**PKI features and data privacy**

Application for secure patient data cards  
and health professional cards.



# MTCOS® eHealth

High security application  
for electronic health cards.

**MTCOS® eHealth is used in one of the largest microprocessor-based health card projects in Central Europe as well as several closed clinic networks worldwide. The use of smart cards and related automated processes significantly reduced administration costs as well as costs caused by misuse. Emergency data stored on the secure memory of the chip saves critical time to identify patients' personal data, where immediate medical care is essential.**

Like the coding system of DNA, MTCOS® secures the personal data of the document holder for an encrypted, wireless transmission and guarantees a unique and swift identification. In only a few seconds, MTCOS® verifies whether the attached system is allowed to have access to the personal and/or biometric data of the document holder. If so, MTCOS® encrypts this data with strong session keys for messaging and then sends it to the system.

To guarantee an ultra-fast and simultaneously ultra-secure procurement, MaskTech offers a platform-/chip-independent and globally proven eHealth application which stores, secures and manages the data saved on the chip.

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- 3 Applications
  - 2 MTCOS® ISO /IEC 7816 API
  - 1 MTCOS® kernel
  - 0 IC (4 architectures)

## Security & Support in every phase

Challenges to be met – 4 key points

- 1 Particular personalization infrastructures**  
MTCOS® supports the life cycle model specified by Common Criteria for the production process of modern electronic documents. All data communication is completely encrypted. Unauthorized access is prevented by transport keys. Global Platform secure messaging and key handling is available for customers using related equipment and functions.
- 2 Extensions and customer specific features**  
MTCOS® can be upgraded flexibly at the customer's request. The changes are loaded completely encrypted during the OS-setup using the loading mechanism that is Common Criteria-certified. The resulting product configuration is comprehensively security tested and certified. On request we also develop project-specific masks.

- 3 Variety of cryptographic features**  
MTCOS® supports a variety of cryptographic protocols. Crypto migration allows the upgrade of cryptographic methods and keys in already issued documents in order to protect them from future potential risks and weaknesses.
- 4 Multiple requirements**  
MTCOS® is available with predefined or customized setups for patient data cards as well as health professional cards both with built-in signature and PKI authentication features.

# Individual Configuration

Our core expertise and products cover embedded software development and corresponding Common Criteria certification – if required, application-specific product extensions and setup of MTCOS® in complex security environments.

MTCOS® is a chip-independent multi-application operating system – ready to be integrated into any electronic health card personalization and manufacturing infrastructure.

## MTCOS® PRO

**IFX SLE78 CLFX series** (MTCOS® PRO V2.5, EAL5+)

**IFX SLE37 CLFX series** (MTCOS® PRO V2.5, EAL5+)

**NXP P71D352** (MTCOS® PRO V2.5, EAL5+)

**STM ST31G480** (MTCOS® PRO V2.5, EAL5+)

## MTCOS® FLEX ID

**IFX SLC36** (MTCOS® FlexID V2.5)

**STM ST31P450** (MTCOS® FlexID V2.5)

**MTCOS® Flex ID**  
is our choice for  
cost efficient projects  
with adequate memory  
and data processing  
needs.

### Flexibility

In an individual configuration, security protocols can be chosen from a list of proven protocols, in particular PA, BAC, SAC/PACE, AA and EAC.

### Project-specific customization

Possibility to add and adjust data group files with individual sizes, depending on national security standards.

### Extensibility

Possibility to add additional applications. Post-issuance personalization may be used to securely add or update patient information or update card services.

## Beyond the mere eHealth application

Flexible procurement, no additional dependencies

### Availability

MTCOS® is available on multiple semiconductors from different manufacturers. We offer hardware ports to chip platforms with the best price-performance ratio.

### Compatibility

Support of important international standards such as ISO/IEC 7816, ISO/IEC 21549. Open design free of thirdparty rights and license costs.



# Our Approach

## Technological competence & reliability

Full support for maximum security  
in your individual project

### We offer:

- 1 Full independence** through triple sourcing – MTCOS® is EAL5+ certified on chips from three different hardware manufacturers.
- 2** We have been keeping up with **all interoperability and performance tests** in the industry to keep our products ahead of others.
- 3 MTCOS® is an all-inclusive package:** Already included functionalities can be activated at a later point in time.
- 4 Our experience is your benefit:** We suggest or jointly develop the best suitable eHealth layout (data structure) for your individual project.
- 5 Full flexibility and interoperability:** No matter which security chip, delivery form, design, antenna, inlay, data page, eBooklet... you choose, MTCOS® is ready for immediate integration (including already established personalization and manufacturing infrastructures).

# MTCOS® applications Overview



**MTCOS®**  
eTachograph



**MTCOS®**  
ePassport



**MTCOS®**  
eResidence Permit



**MTCOS®**  
eDriving License



**MTCOS®**  
eID



**MTCOS®**  
ePayment



**MTCOS®**  
Customised

# Checklist for eHealth projects

## **MTCOS® & ID Data**

Patients personal data are securely stored in the chips memory. The data can be protected with an electronic signature guaranteeing integrity and authenticity.

## **MTCOS® & Admin Data**

Administration data are used by the issuing authority and contain information about the insurance, status, expiry date, etc.

## **MTCOS® & Emergency Data**

Accessible by authorized doctors only, the emergency data set contains immediately required information such as blood group, allergies, immunization data, current medication, etc. The number of entries is only limited by the smart card IC available secure memory.

## **MTCOS® & Copy Protection**

Public key authentication makes copying of the health card impossible.

## **MTCOS® & Card2Card**

The public key based Card2Card authentication mechanism ensures that only trusted entities can access the sensitive data on the card.

## **MTCOS® & Trusted Medic**

Simplifies the access to patient data information for certain trusted doctors (no PIN entry) selected by the patient.

## **MTCOS® & Privacy**

The patient decides which data are accessible by the doctor. Individual access rights for all data on the chip can be easily configured.

## **MTCOS® & Signature**

Signature functions are used to authenticate card holders for web portal services.



**MTCOS®  
eHealth Chip**

## **MTCOS® & Standards:**

ISO/ EC 7816 - 3, 4, 6, 8, 9, 15

CEN 14890, CEN 15480, PKCS#15

SHA-1 and - 2 support

ISO/IEC 21549

ISO/IEC 14443 Type A or B

## **MTCOS® & Personalization:**

4-stage Life cycle manager

Transport key protection with SAM & HSM

Global Platform

Fast personalization mode

## **MTCOS® & Cryptographic protocols:**

Holder data

Administration data

Emergency data

Certificates

Digital signature

3DES & AES cryptography

RSA cryptography

Elliptic-curve cryptography

Card2Card authentication

Trusted medic

Copy protection

# About MaskTech

**MaskTech is an independent company specialized in the development of high-security card operating systems.**

**We provide MTCOS®, our MaskTech operating system, and various included applications for the electronic document and authentication market as license or as a chip and OS package.**

Ever since our first ICAO-compliant application in 2004 to the implementation of the latest LDS 2.0 specification, we always work enthusiastically to provide our customers the safest and fastest electronic document solution on the market. Founded in 2002, MaskTech has gained an outstanding reputation for innovation and state-of-the-art

technology in the electronic documents sector. Due to many years of experience and our excellent network in every step of the eHealth card production and issuance chain, we can meet our clients' specifications, adding know-how to their portfolio if necessary.

Our product range includes generic and customized applications for chips of the leading security semiconductor manufacturers as well as security certification services. To date, MTCOS® protects more than 400 million eDocuments around the globe. The independent company has its headquarters in Nuernberg, Germany.

# MaskTech Testimonials

**MTCOS® is one of the most frequently used smartcard operating systems for eID documents. More than 65 countries worldwide have issued their ID and travel documents with MaskTech's secure OS.**

MaskTech's MTCOS® is embedded in 45 countries' ePassports worldwide and more than 20 countries' eHealth, eResidence Permit, eNational ID, eDriving License, welfare and authentication solutions in a unique variety of configurations and infrastructures.

## North & South America

7 Testimonials

## Europe

24 Testimonials

## Middle East & Asia-Pacific

14 Testimonials

## Africa

21 Testimonials





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