



TechTrex SecureMark
(Enhanced Version of SecurePro)

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Personalization Solutions for the Real World

About TechTrex Inc.

- ▶ TechTrex provides unique, cost-effective solutions exclusively for the card and payments industry.
- ▶ **SecureMark** is a system which combines TechTrex SecurePro Personalization production software with a personalization system that has laser marking capability, in other words, SecureMark is the enhanced version of SecurePro.
- ▶ Formerly known as *CardMark*.
- ▶ Name Changed to *SecureMark* to represent our new markets in NFC for handling Secure Devices, Secure Elements in addition to Cards.

About TechTrex Inc.

- ▶ Offices in the US, Canada, China, and Korea, we are indeed a global company.
- ▶ TechTrex leverages international development and manufacturing capabilities to deliver solutions faster and at a much lower price point than current competitors.
- ▶ We strive to effectively use available resources to provide quality- driven products at a competitive price.

Mature Company in Card Systems

Experience Management

- ▶ **Charles Lee - President**
Ex President & CEO, NBS Technologies
- ▶ **Victor Chan - EVP, Business Development**
Ex Vice President Business Development, NBS Technologies
Ex Director Systems Integration Centre, Datacard Corporation
Served 16 years in NBS, 5 Years in Datacard
- ▶ **Thomas Chou- EVP, Business Development**

Mature Company in Card Systems

- ▶ Previously served multiple institutions on EMV chip card migration projects.
- ▶ Altogether our team composition boasts over 65 man-years in cumulative EMV and chip card experience.
- ▶ We have served over 50 financial institutions in EMV chip card migration in six continents.

TechTrex R&D

- ▶ Two development sites, Toronto, Canada and Qingdao, China.
- ▶ TechTrex leverages international development and manufacturing capabilities to deliver solutions faster and at a much lower price point than current competitors.

TechTrex R&D

- ▶ On joining the *MULTOS Consortium*, it enhances the flexibility of TechTrex's smart personalization solutions, including the issuance of e-Passport, contact and contactless EMV/ Banking, Secure ID, and e-Purse cards, and offers an additional application of our technology, systems and processes.

TechTrex R&D

- ▶ As a Business & Systems Member, TechTrex gains input into the future development of the **MULTOS Standard**, the opportunity to participate in collaborative marketing initiatives, and automatic rights to implement the MULTOS step/one Off- Card Specifications, a blueprint for key management and data preparation of EMV and other value added applications.

References for EMV Installations

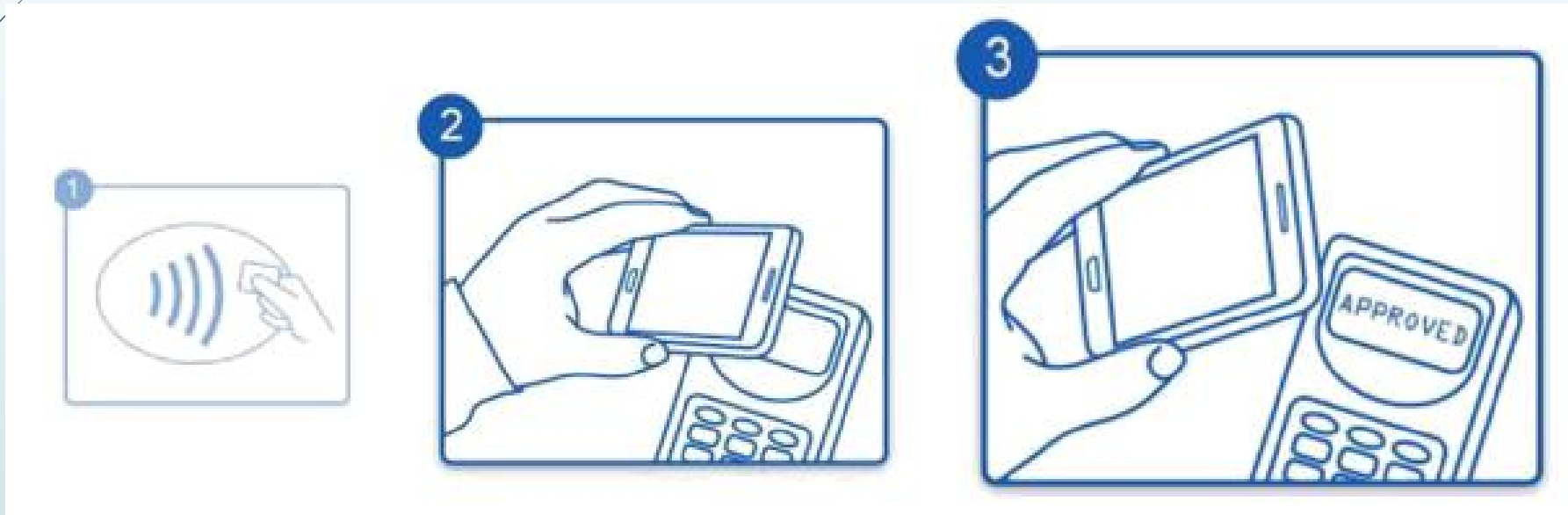
Country	Details	Year	Machine
Ghana	Central Issuance for a bank	2020	CIM Combi 500
DR Congo	Central Issuance for a bank	2020	Matica S7000
Ghana	Central Issuance for a bank	2020	Datacard MX1100
India	Instant Issuance for 2 bankbranches	2019	Datacard CE840
USA	Data Preparation for a Card Scheme	2018	DataCard 9000
China	Central Issuance for a personalization bureau	2018	NBS Horizon
Canada	Instant Issuance for 9 bankbranches	2017	Zebra ZXP3
China	Central Issuance for a personalization bureau	2016	Datacard MX1100
India	Central Issuance for a bank	2016	Datacard 9000
Korea	Central Issuance for a personalization bureau	2015	Datacard MX6000
Greece	Instant Issuance for 178 bankbranches	2014	CIM 821
Thailand	Central Issuance for a personalization bureau	2014	Matica many models
Canada	Data Preparation for a bank	2014	NA
S. Africa	Central Issuance for a personalization bureau	2013	Matica many models

Mobile Phone Contactless Payments

- ▶ Alpha Bank, Vodafone, Visa Europe and First Data, introduce Tap 'n Pay, the first mobile phone application for contactless payments in Greece.
- ▶ Tap 'n Pay, a “mobile wallet” application, provides a fast, easy- to-use and secure payment process, by Near Field Communication (NFC) technology.

Mobile Phone Contactless Payments

- ▶ Application uses a special mobile SIM card, on which the Bank Visa debit card (VMPPA APP) is stored.



Wide Range of Chip card Support

- ▶ A universal chip card interface that already have support for the following card types.

Global Platform Java card VSDC & M/Chip

- NXP JCOP10, JCOP21, JCOP30, JCOP J2A020Y
- JTOPv15
- G&D Convego, SmartCafe
- Gemalto GXP4, GXP7, Clarista CV4, PV5, GFX2, GFX3
- KONA
- Oberthur Cosmo
- UbiVelox
- Plastic Card Enterprise Pectoral
- STMicroelectronics STPAY

Wide Range of Chip card Support

Global Platform Java card PBOC

- KONA PBOC2.0
- Watchdata PBOC2.0
- Datang Microelectronics Technology PBOC2.0 PBOC3.0
- UbiVelox UBJ21-G22 PCOC3.0

Wide Range of Chip card Support

Global Platform Java card CPA

- KONA
- Global Platform Java card DPAS
- UbiVelox
- STMicroelectronics STPAY
- Gemalto
- NXP

Wide Range of Chip card Support

MULTOS

- MULTOSMCCS
- MULTOSMICA M/Chip4 +Paypass
- MULTOSM/Chip 2.05, 2.06

- MULTOSVSDC
- MULTOSPBOC2.0 PBOC3.0
- MULTOSD-PAS / RuPay
- MULTOSPure

- MULTOSSPAN2
- MULTOS step/one MICA,M/Chip4
- MULTOS step/one M/Chip 2.05

Wide Range of Chip card Support

Native

- Trüb Combos DDA M/Chip and VSDC
- Oberthur MoneytIC Chrystalis VSDC
- Gemalto GemGalleon M/Chip and VSDC
- Gemalto GemValue Vision VSDC
- Gemalto e-Galleon VSDC
- Gemalto Optelio M/Chip and VSDC
- G&D StarDC M/Chip and VSDC
- Morpho EMV Pro Y
- Morpho EMV Plus M/Chip & VSDC
- Morpho EMV Pro CL M/Chip & VSDC

Wide Range of Chip card Support

Native

- Toshiba FS Sigma 14 M/Chip and VSDC
- Inside MP2323 M/Chip Advance and VSDC
- Advantis VSDC
- Mifare

Market Position of TechTrex SecureMark

- ▶ TechTrex SecureMark is **the only complete EMV personalization solution** in the world that is not associated with any personalization equipment vendor or a card manufacturer.
- ▶ **Other Independent software vendor**
...needs another brand of Data Preparation, and thus not price competitive.

Market Position of TechTrex SecureMark

- **Software from Personalization Equipment Vendor**
 - Will be bias towards their own brand of personalization machine.
 - Does not allow the user freedom towards choosing personalization machines.

- **Software from Card Manufacturer**
 - Will be bias towards their own brand of cards.
 - Does not allow the user freedom towards choosing cards.

Market Position of TechTrex SecureMark

- ▶ Latest Personalization production software in the market.
- ▶ A consolidation of many years of experience from NBS, UbiQ, DataCard & Gemplus
- ▶ TechTrex SecureMark is a complete smart card personalization suite.
- ▶ Focus is in EMV banking market – with an extension into branch level instant issuance.

Advantages of SecureMark

- ▶ **TechTrex - Strong Industrial skill, Experienced Personnel**

Additional consulting capability and acquiring experience to address globally EMV migration.

- ▶ TechTrex SecureMark is the only complete EMV personalization solution in the world that is not associate with any personalization equipment vendor or a card manufacturer.

- ▶ Low Cost, High Performance, Strong Support 7/24.

- ▶ Compatible with Visa and MasterCard security requirements.

Advantages of SecureMark

- ▶ Open & Innovative Platform.
- ▶ Will support third party proprietary application development.
- ▶ Will support third party development of EMV card type.
- ▶ Fully documented solution.

SecureMark Modules

- ▶ **Three Core Modules**
 - DP – DataPrep
 - CP – Card Production (Chip Perso)
 - KM - Key Management

- ▶ **Other Modules**
 - II - Branch level Instant Issuance
 - PC - Branch Pin Change Station
 - PM - Pin Management
 - PVT - Personalization Verification Tool

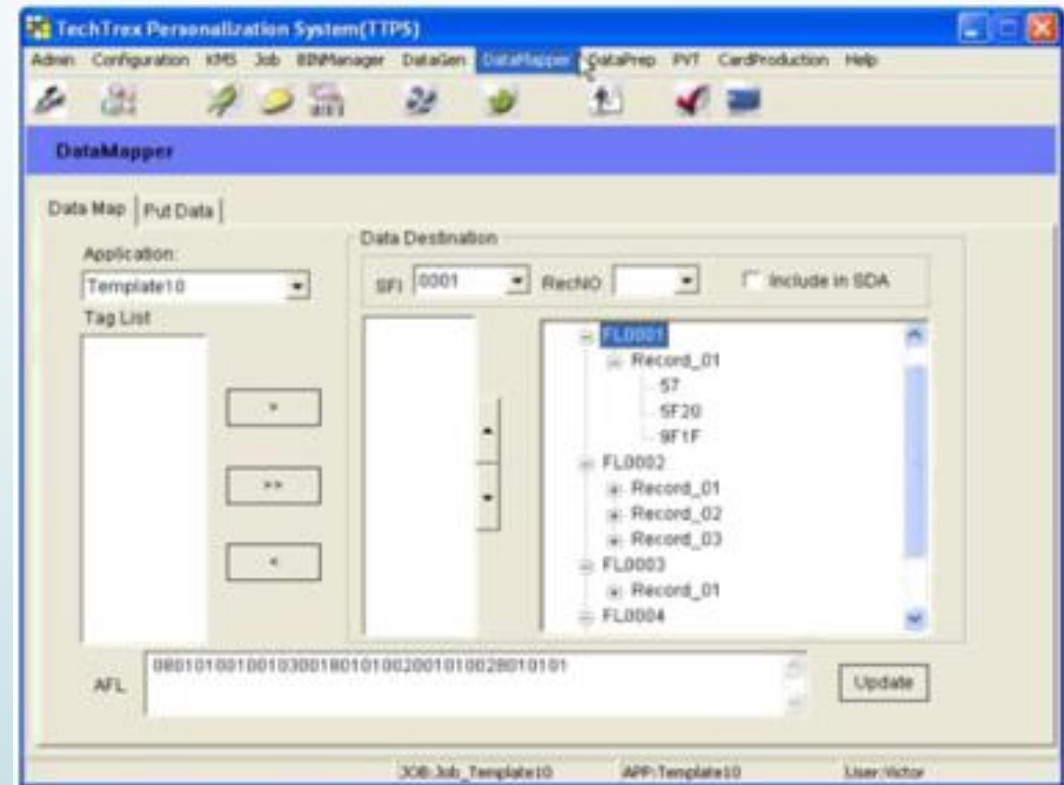
- ▶ **SDK - Software Development Kit**

Data Mapper

► Configuration tool which defines what data is to be written in which location within the card.

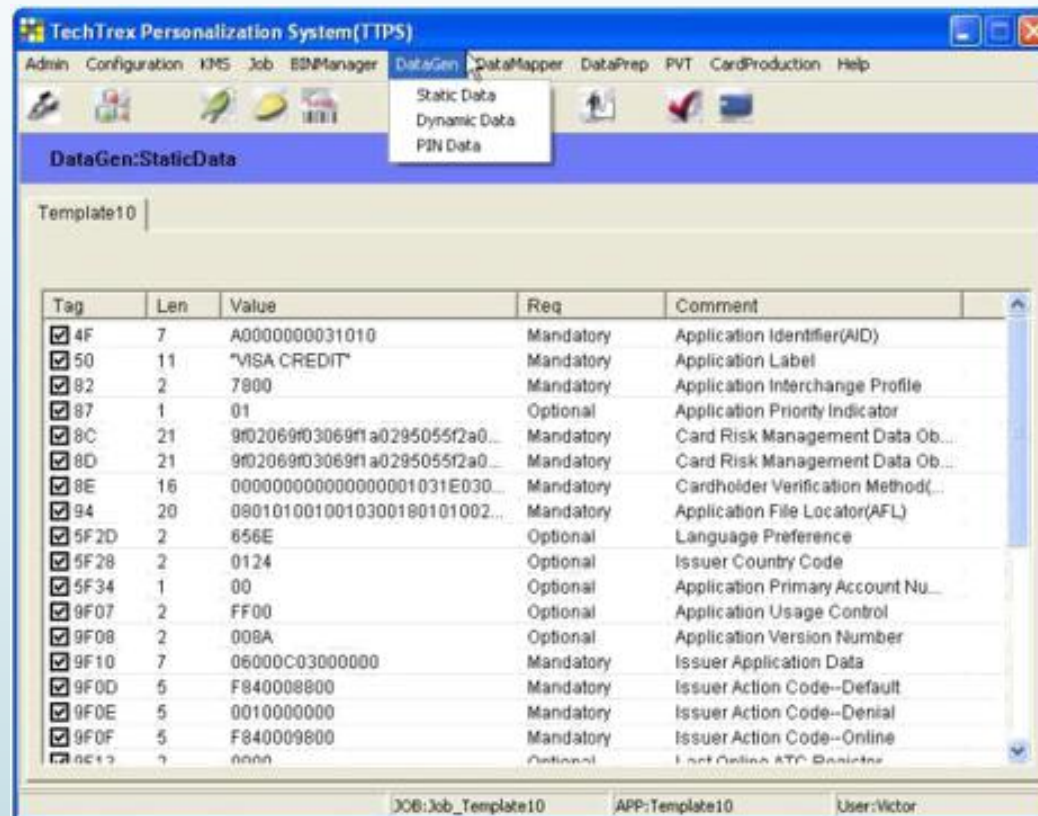
► **Data Destination Type includes:**

- DGI (GP Common Perso)
- SFI (GP Conventional Perso)
- Files (Native Cards)
- ALU (MULTOS Cards)



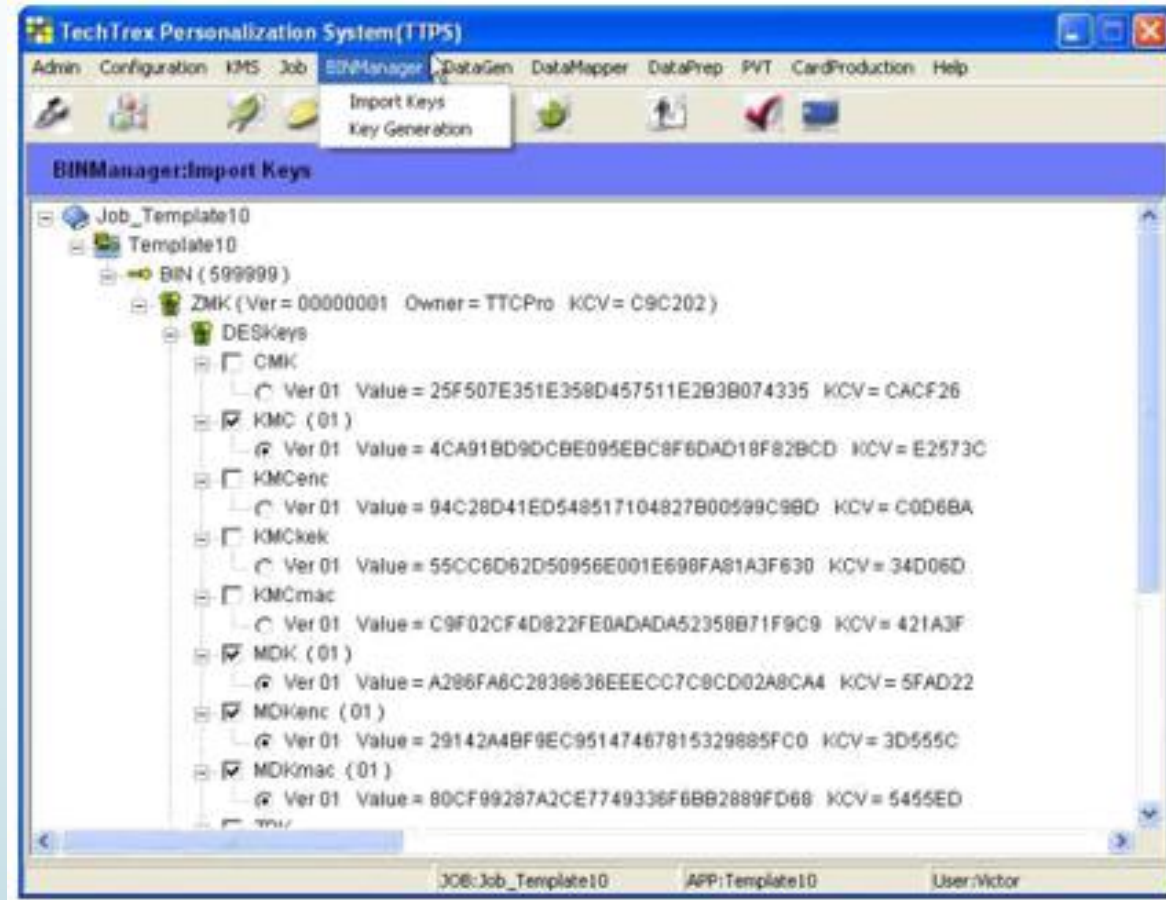
Data Generator

- A configuration tool which defines the data to be handled during the data preparation (P3) Process. It also defines whether an EMV Tag will be included and its associated length and value.

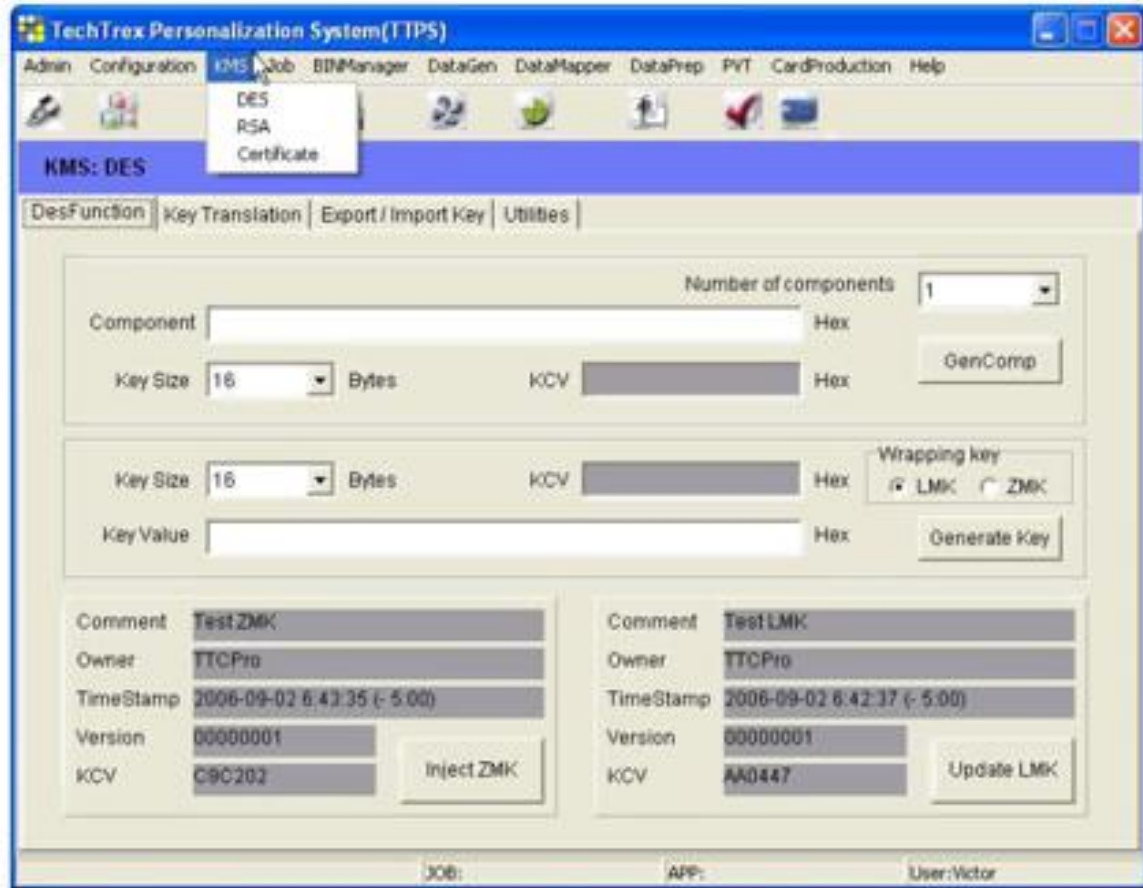


Bin Manager

- Manage the keys and key certificates associate to a BIN.



Key Management



► Key Component(s)

-Generation/Export

► ZMK

-Import /Export

-multiple components injections

► DES

-Key Generation/Export

► RSA

-Key Pair

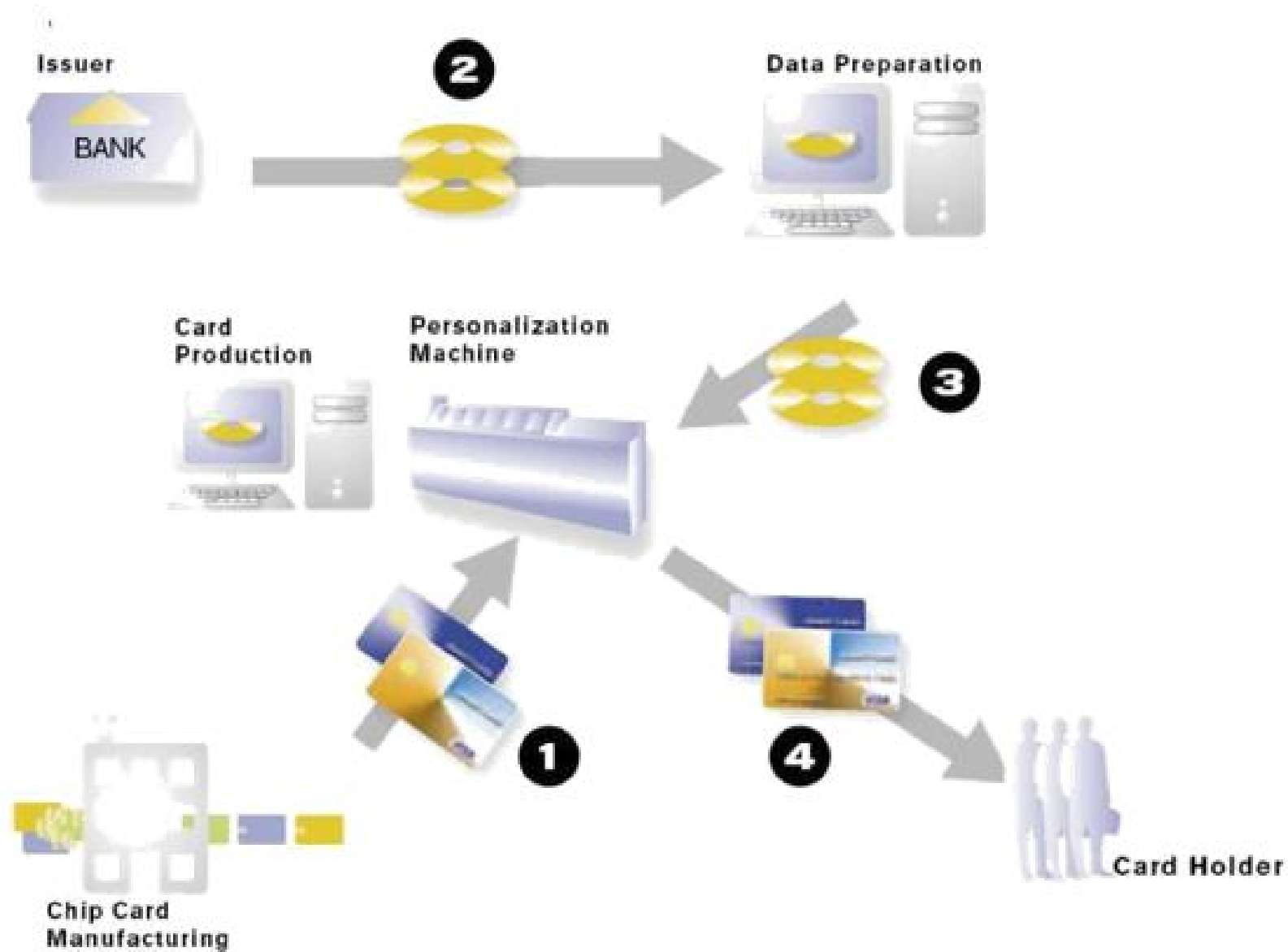
-Import /Export

EMV Personalization Steps

- Issuer order cards from manufacturer and the cards are sent from manufacturer to personalization location.
- Issuer's card management system prepares a traditional card personalization data file.
- Card personalization Data File is process by an EMV Data Preparation (DP) system. A new data file is prepared and to be fed into the Card Production (CP) Personalization system.

EMV Personalization Steps

- ▶ A Card Production (CP) Personalization system accepts the output file from data preparation process as input and performs the true physical personalization by interacting with the smart card on the personalization device.
- ▶ The EMV card is now personalized according to the final cardholder profile and to be delivered to the cardholder.



EMV Instant Issuance

► 1) Enrollment

-Capture Cardholder Data

► 2) Card Request

-Connection with the Central office, using issuer's proprietary network

► 3) Issuer CMS

-New account creation/ update

-Card data from CMS ready to be used by SecurePro Instant Issuance Central System

EMV Instant Issuance

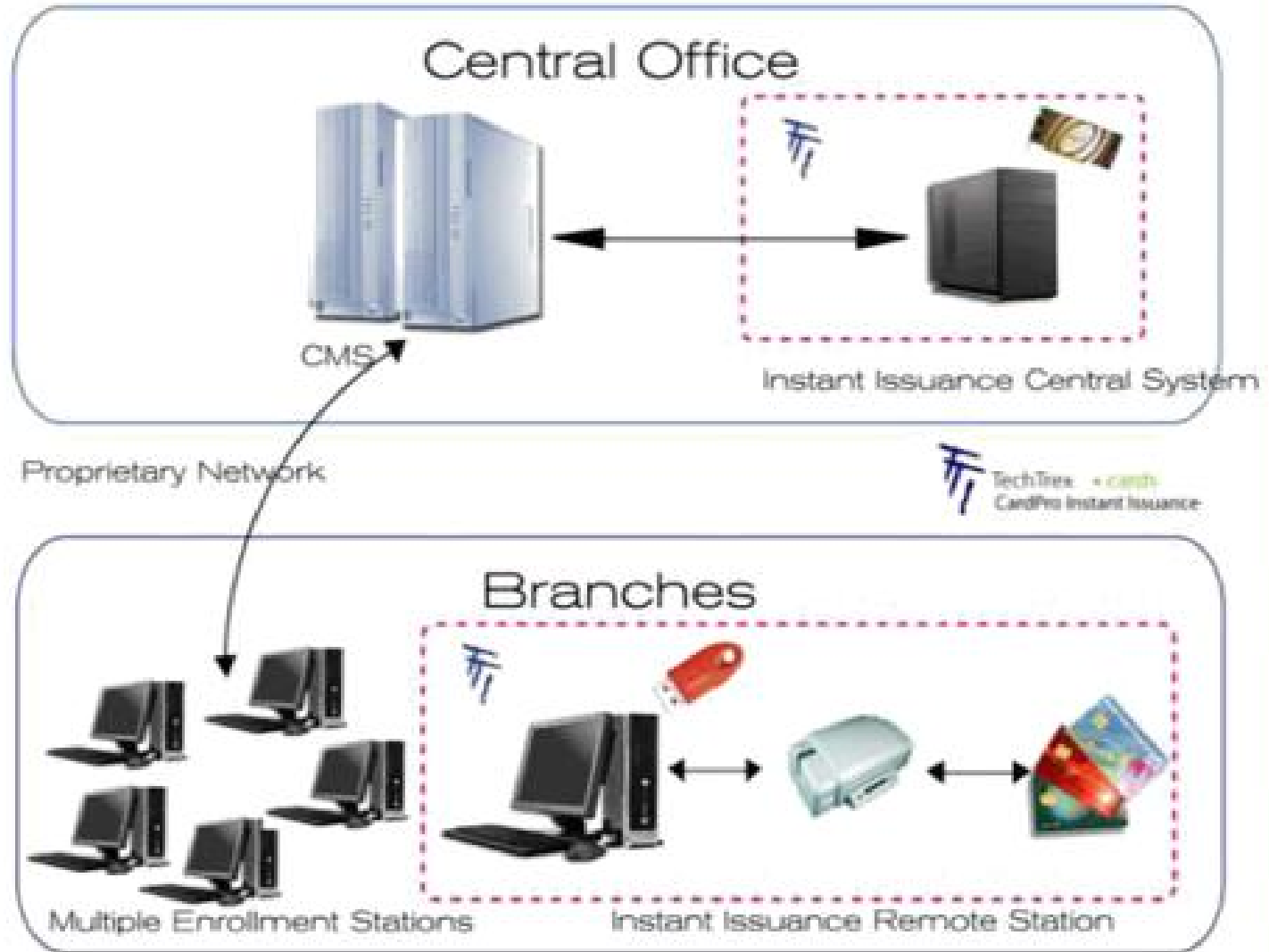
4) SecurePro Instant Issuance Central System

- Card data import
- DataPrep - Generate EMV profile data
- Optional application data generation, Loyalty, CAP ...

5) Acknowledge to CMS Route data to branch

6) SecureMark Instant Issuance Remote Station

- Display Information for clerk card to be inserted into embossing machine, Physical & chip Personalization



TechTrex SecureMark Benefits

- **Provides a complete solution**

TechTrex can supply all three required modules for EMV card personalization

- Data Preparation (DP)
- Card Production (CP)

- Users may employ TechTrex DataPrep for data preparation or other brand of data preparation software such as P3™

- TechTrex DataPrep is compatible to Thales P3™

Benefits of TechTrex SecureMark

- ▶ Provides support for different brands of HSM
 - Safenet (FIPS 140-2 Level 3)
 - Thales
 - Local brands
- ▶ Complete system offering, provides support from single smart card head machine for instant issuance to multiple head machines for mass issuance.
- ▶ Provides 7/24 support from two centers in Toronto, Canada and Qingdao, China.

Why TechTrex SecureMark ?

- ▶ TechTrex SecureMark is an independent and complete solution for EMV personalization supporting both mass issuance and branch level instant issuance.
- ▶ TechTrex SecureMark, is designed to meet the requirements for mass issuance production of EMV cards when connecting to high throughput personalization machines.
- ▶ TechTrex can offer optional professional services by experts with true industrial background in personalization, project managements and consulting during the complete project.

Why TechTrex SecureMark ?

- ▶ TechTrex SecureMark can support most popular brands of personalization machines in the market.
- ▶ TechTrex SecureMark can support any EMV native platforms or open card platforms cards.
- ▶ TechTrex SecureMark can support Multiple Application personalization.
- ▶ TechTrex SecureMark is an advance and cost effective EMV personalization solution.

Why TechTrex SecureMark ?

- ▶ TechTrex is devoted exclusively to serve the banking and payment industry.

As such, we bring to our clients:

- Extensive knowledge of the EMV marketplace, including current trends and issues of the different Financial Institutions. We bring hands on experience in EMV migration from many parts of the world and years of experience in working with plans that maximizes value for the clients.

- ▶ **We can help when:**

- An institution is looking for external consultancy in order to obtain help in the shaping of their concept of EMV migration and timeline for business and information system transition to chip technology.

- Also when an institution is seeking to engage an EMV consultant to assist with the assessment of their EMV CHIP requirements, business opportunities and migration plan.

Why TechTrex SecureMark ?

- ▶ **TechTrex could provide support in the EMV migration:**

- Providing Workshop and Technical Workshop for customer staff, in order to gain a better understanding of the migration process as well as the smart card opportunities.

- Providing consultancy services in order to define the migration path to EMV, both issuing and acquiring systems, and also services to define the project plan for the project.

- We offer project management and technical consultancy for Issuing, ATM, and other backend services.

- ▶ We are very familiar with the CHIP migration marketplace, as well as issues that must be addressed to evaluate and manage CHIP migration plans effectively.

Why TechTrex SecureMark ?

- ▶ Our consultants have previously served multiple institutions on EMV chip card migration projects.
- ▶ Altogether our consulting team composition boasts over 65 man-years in cumulative EMV and chip card experience.
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Issuing Solutions



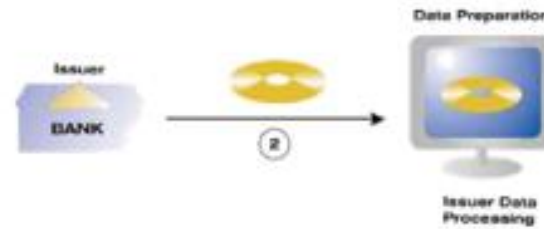
SecureMark - Mass Issuance



Personalization Verification tool



Card Applet Development



SecureMark - Instant Issuance



PIN Selection



Card Management System

More about TechTrex

► Acquiring Solutions

- Dial Terminals
- IP Terminals
- Wireless Terminals
(GPRS, WiFi)
- Mobile Terminals
- ATM
- Check & ID Scanning



nPrimeTrex-S
nWireless GPRS



nPrimeTrex-S
nWireless WiFi



nPrimeTrex-S



nS700
nPINpad



nPrimeTrex IP



nPrimeTrex One



nTT Scan 800



nTT ScanPass



nSmartBank 2000

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