An Integrated Approach to Card Issuance -- Biometrics

Smart Card Alliance:
Smart Card in Government Conference
Wednesday, April 20, 2006
Christer Bergman
President and CEO
Role of Biometrics in the DHS PIV System

- Background check ten-print
- Employee/consultant enrollment
- Verification at PIV card issuance
- Physical access control
- Logical access control
DHS PIV System Architecture

Physical Access Control System (PACS)

Physical Access

HR Security Clearance

PIV Pre-Enroll

PIV & Network Admin Browser

Applicant Sponsor

Enrollment Workstation

Revocation Browser

Registrar

Issuance Op

Card Issuance Workstation

Card Management System (CMS)

Certificate Authority

CA Repository Active Directory

Meta Directory

DHS HQ Active Directory

Open Interface API

Issue Revocation

User Provisioning Authorization

Issuance Request Notifications

Life Cycle Mgmt API Notification API

Badging API

PIV Enclave

HTTPS

Identity Management System (IDMS)

Hot List Subsystem

Interoperability APIs

PIV & Network Admin Browser

PIV & Network Admin Browser

PIV Card
Biometrics in the DHS PIV System

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Identity Management System (IDMS)

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Card Issuance Workstation

ISSUANCE OP

PIV Card

Physical Access Control System (PACS)

Logical Access

Logical Access Control System (LACS)

Physical Access

Card Management System (CMS)

Card Issuance Workstation

Issuer Op

PIV Card
Background Check -- Ten-Print

- Biometrics – specifically a flat ten-print – are taken for the purpose of conducting a background check
- Provides basis for positive ID and strong verification
- DHS uses CrossMatch and Heimann systems to take the ten-print
Employee/Consultant Enrollment

- Biometrics verify the identity of the individual to be enrolled, based on the ten-print on file
- PIV-compliant templates are created from the ten-print images
Verification at PIV Card Issuance

- Fingerprint verification confirms ID of the individual receiving the PIV card
- Biometrics throughout the issuance ensures trusted end-to-end system for identity integrity
- At this stage DHS uses the Precise 250 MC
Physical Access Control

• Biometrics are used as part of the requirements under HSPD-12
• Biometrics add security and convenience
• DHS uses Precise BioAccess 200
Logical Access Control

- PIV cards with biometrics provide strong two-factor authentication to secure access to the network and sensitive files
- Biometrically-enabled PIV cards meet the requirements of FIPS 201
- DHS uses the Precise 200 MC
Match-on-Card Definition

Match-on-Card is:

- The process of matching a biometric sample against a reference template inside the secure environment of a smart card
- The reference template cannot be read out from the card, but only accessed internally by the matching process
How It Works: Match-on-Card

Match-on-Card verifies users identity without reducing privacy

Network and PC access

Physical access

Embedded systems

Personal ID

The matching is on the card: your identity stays with you:
• Templates secure
• Works with existing infrastructures such as PKI
Biometrics in Action – A Complete PIV-Based System
DHS Match-on-Card Model

- Match-on-Card for PIN replacement to provide increased security and privacy protection
- Match-on-Card architecture adheres to FIPS 201 as an agency-specific extension to the proposed PIV data model
- FIPS 201 now allows for ANSI 378 template to be stored on card with PIN protection
- Physical access using Match-On-Card provides convenience and throughput of a wireless reader meeting the current security standards NIST has specified in SP800-73
  - No PINs or templates may be sent over the PIV contactless interface
Thank You!
Christer.bergman@precisebiometrics.com

Sweden, Lund (headquarters)
Precise Biometrics AB
Tel +46 46 31 11 00
Info@precisebiometrics.com
infous@precisebiometrics.com

US, Vienna (subsidiary)
Precise Biometrics, Inc.
Tel +1 (703) 848 9266

UK, London (subsidiary)
Precise Biometrics LTD.
Tel +44 (0)207 959 3060
Info@precisebiometrics.com
Info@precisebiometrics.com

More information please visit: www.precisebiometrics.com