The Future is Now

Power of Integrating PKI and Personalization

ICAO 2016 - Mary Olson

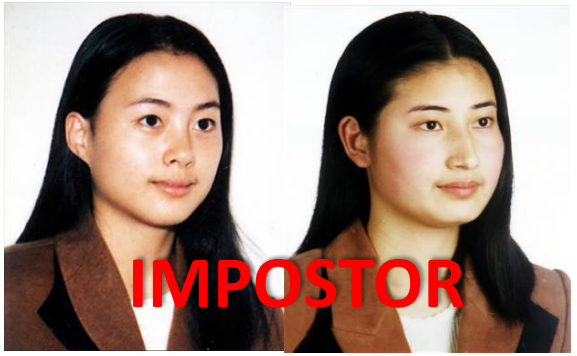
SECURITY THREATS

DOCUMENT ATTACK

MAKE IT!
Counterfeit

FAKE IT!
Alteration

TAKE IT!
Impostor/lookalike



BINDING PHYSICAL AND DIGITAL SECURITY AND SECURE ISSUANCE

Physical Security

Substrate

Paper
PVC
Polycarbonate
Smartcard

Personalization

Inkjet
Dye Sublimation
Retransfer
Laser

Security Features

Laminates
Hologram
STOP
Laser

Binding Physical and Digital Security

Machine Perso Fingerprint

Combines a unique machine fingerprint with variable user data into a digitally signed object that can be printed on the document

When validated provides proof of origin, integrity and authenticity

Digital Security

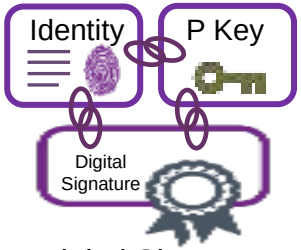
HSM
USB
Mobile
Smartcard

Form Factor

X509
ICAO BAC/EAC
ISO7816
PIV

Certificate

Encryption
Hash
Keys
PKI



Digital Signature

Document Validation

Document Issuance Validation

eValidation

Entrust Datacard™

SECURITY AT TIME OF PERSONALIZATION (STOP)

STOP methodology utilizes variable data applied in the issuance process

INHIBITS ALTERATION

Includes variable information unique to the document, making it difficult to alter

DETER COUNTERFEITING

Specialized knowledge and technology to duplicated, limiting the value of a stolen substrate

RAW MATERIALS HAVE LESS VALUE TO COUNTERFEITERS

and less chance of being stolen during transport and distribution

IMPROVES AUTHENTICATION

S.T.O.P includes overt and covert features that enable easy validation

PRINTERS HAVE LESS VALUE TO COUNTERFEITERS

Provides document proof of origin and binds the identity to the issuance process

- INHIBITS TAMPERING
- RESISTS MASS ATTACK
- REDUCES COMPONENT & PRINTER THEFT
- STRENGTHENS VERIFICATION

- https://www.datacard.com/stop/

COMBINE SECURITY LEVELS WITH EMPHASIS ON LEVEL ONE

LEVEL ONE

LEVEL TWO

LEVEL THREE

https://www.datacard.com/stop/

MICRO LASER SURFACE IMAGING™

For *Polycarbonate Passport Datapages*:

The Datacard® Micro Laser Surface Imaging™ (MLSI) feature is created on a variety of plastic materials including polycarbonate and optical variable devices (OVD) in the substrates by heating the materials with a precisely controlled laser.

ID3 Systems

Entrust Datacard™

MICRO LASER SURFACE IMAGING™

For *Paper Passport & Thin Overlays*:

The Datacard® Micro Laser Surface Imaging™ (MLSI) feature is created on thin overlay film by heating the materials with a precisely controlled laser.

ID3 Systems

MICRO LASER SURFACE IMAGING

For *Polycarbonate Cards*:

The Datacard® Micro Laser Surface Imaging™ (MLSI) feature is created on a variety of plastic materials including polycarbonate and secure overlays by heating the materials with a precisely controlled laser.

LASERFLEX

Line of text (regular or inverted), is added to an ID Document on the front or the back. Text appears differently in bar when card is tilted. Text is tactile over the bar.

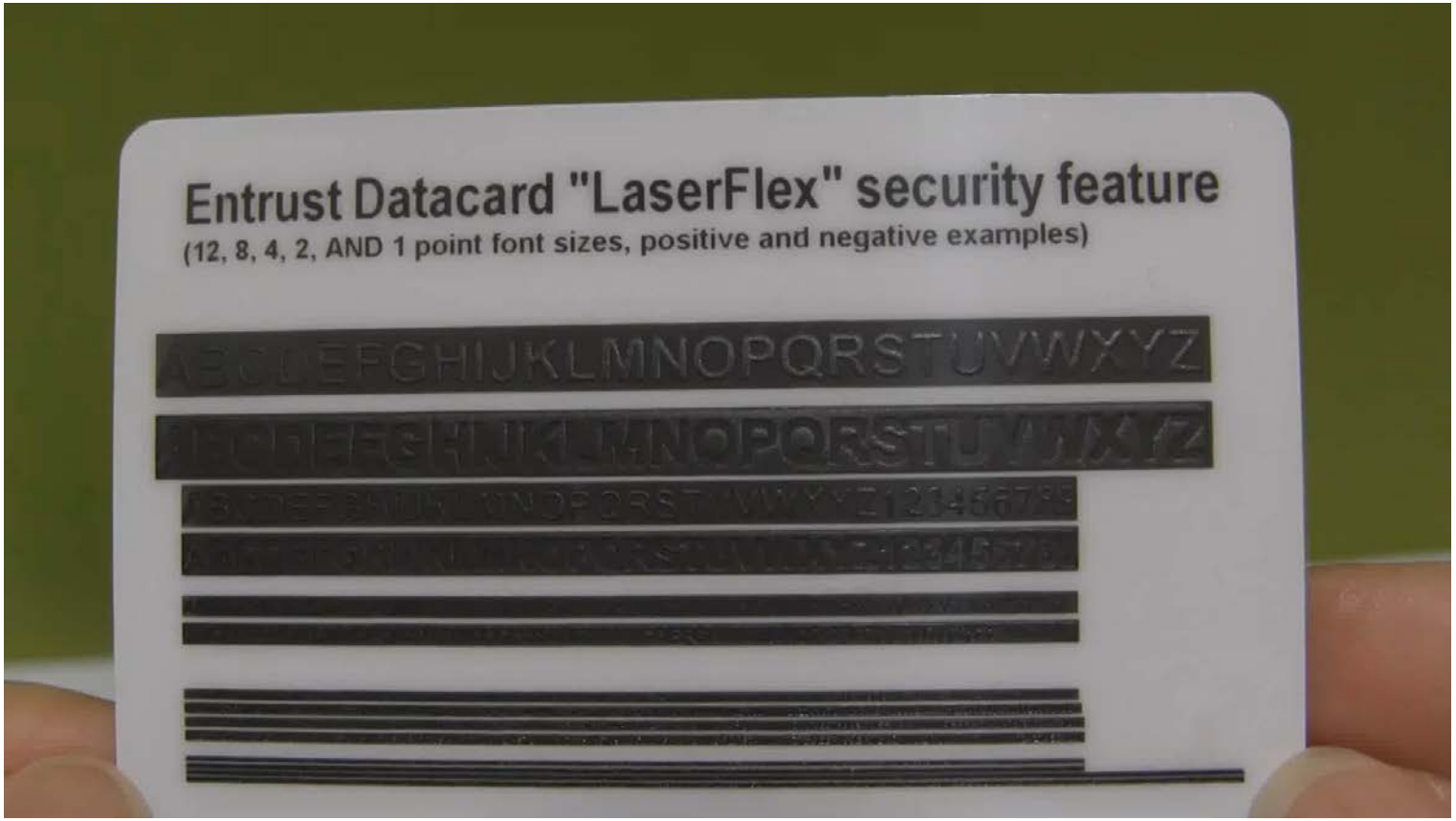
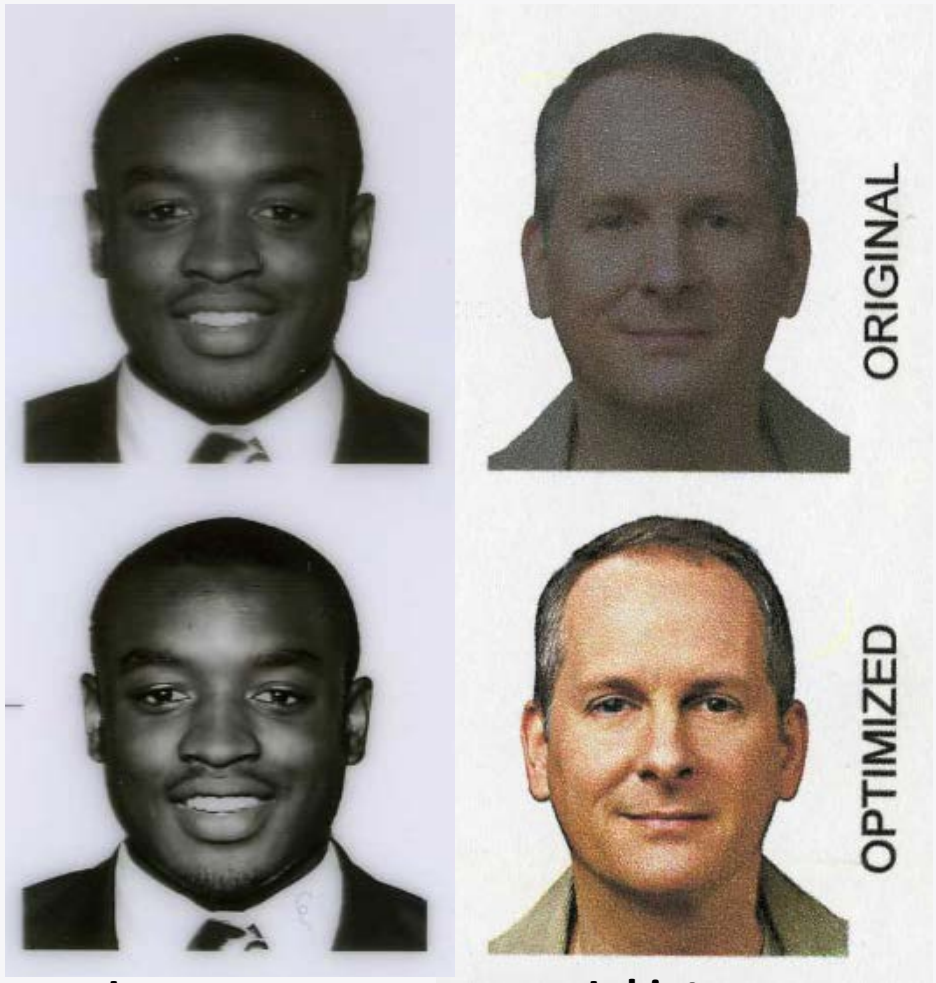


PHOTO OPTIMIZATION

Photo can be optimized to improve the quality and consistency of the image during the personalization process.

You no longer need to rip and replace your enrollment & capture infrastructure to personalize quality photos.



MACHINE PERSO FINGERPRINT (MPF)

NEW SECURITY ELEMENT

Machine Perso Fingerprint binds the identity of the printer with the citizen data within the document and provides assurance of the document integrity and validates where the document specifically came from.

This allows for the detection of fraudulent issuance of documents by an adversary that has access to identical hardware and document blanks.

The addition of this feature to the personalization process requires no change to the document itself.

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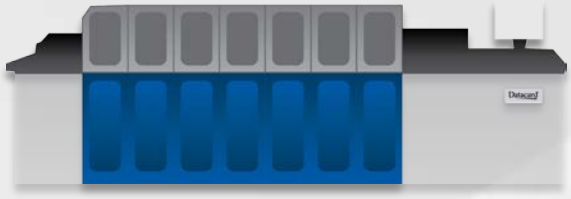
MACHINE PERSO FINGERPRINT - ISSUANCE

How does MPF Issuance work?



Printer contains a MPF signing identity (certificate and key) stored in a secure element

During document personalization, the MPF algorithm creates a signed data structure based on the machine fingerprint and citizen biographical data (e.g. MRZ)

The MPF security feature is printed onto the document the form of a barcode — and optionally encode onto chip

MACHINE PERSO FINGERPRINT - VALIDATION

How does MPF validation work?

Much like chip-based Passive Authentication, the MPF validation reconstructs the MPF data structure employing the same input data (Machine fingerprint and citizen variable data) to establish a cryptographic match, thereby proving the integrity and authenticity of the data, and tying the document back to its source.

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MACHINE PERSO FINGERPRINT - VALUE

A nation would be able to gain cryptographic assurance that the document was produced on an authorized printer and that the biographic details of the traveler have not been altered.

A nation, with knowledge that an authorized printer has been stolen, would be able to detect documents in use that have been produced on that printer.

BINDING PHYSICAL AND DIGITAL TECHNOLOGIES

- Physical features can be counterfeited and not noticeable to the untrained eye
- Digital Features can be counterfeited and machines cannot detect
- NEW Machine Perso Fingerprint can validate the authenticity of document issuance

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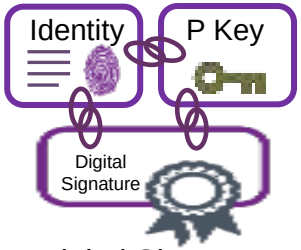

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Thank you

Back up slides in case link does not work

COLOR & LASER STOP FEATURES

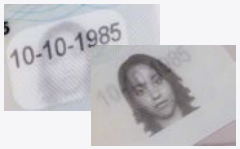
UV

Ink containing material that glows when exposed to UV light at a specific wavelength and that ceases to glow once light source has been removed.

Perso-Curve

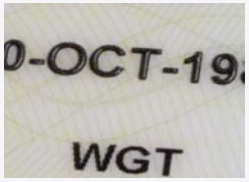
Combines unique variable large fonts, microprint, and biographical data, using laser engraving.

MLI/CLI



Precise registration of the multiple variable data elements engraved on a lenticular lens that appears to change when viewed from various angles.

Tactile Laser Engraving



Laser engraving creating a tactile effect, resulting in raised signatures and text that users or inspectors can feel but not noticeable to the naked eye.

TACTILE LASER ENGRAVING STOP FEATURES

LaserTact

LaserTact provides variable data and creates an extreme tactile impression that you can feel and see.

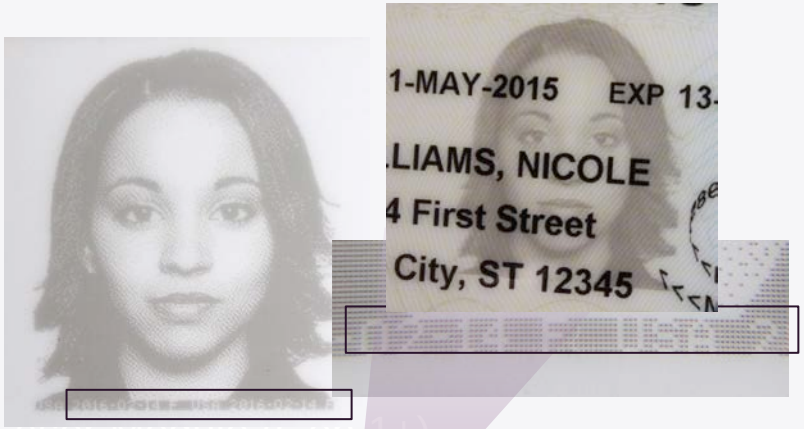
This laser engraving process imprints a wider and more prominent impression and color hue of variable biographical data into the polycarbonate data page.

Lasershadow

LaserShadow uses a dithered laser engraving technology to create large backgrounds of variable text or images that overlap other personalized data fields.

This will NOT become tactile when overlapping other biographical data unlike general laser engraving.

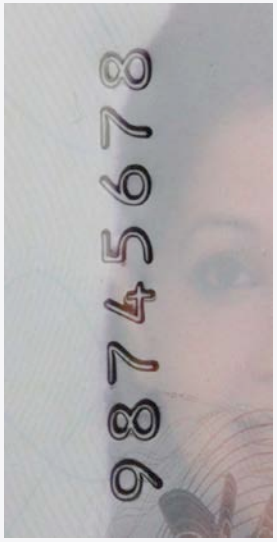
Microprint can be embedded into the LaserShadow image or text.



ID1 Systems & ID3 Systems & Features:

TACTILE STOP FEATURES

Secure Indent



Variable indenting creates a recess in the card that can be removed and offers a tactile verification. The outlined font is more difficult to simulate or counterfeit vs. straight lined characters typically seen today.

It can be personalized with several outputs, such as OCR-B, Outline, Patterned characters or a custom font or special characters.

Braille

Variable embossed Braille characters leave permanent raised marks on the card, creating a physically altered card that is difficult to change.

Provides a unique tactile field on the card and allows for physically impaired citizens to read their card.

LASER & COLOR REGISTRATION

Laser Color Registration

Register an over color photo and covert laser engraved photo. The laser image is permanently engraved and cannot easily be removed without damaging the card and is evident when D2T2 photo substitution is attempted. Also, evident when viewed by an infrared light