

Coesys eBorder Solutions for National Security

||||| Providing effective border control. Helping citizens to travel freely and securely



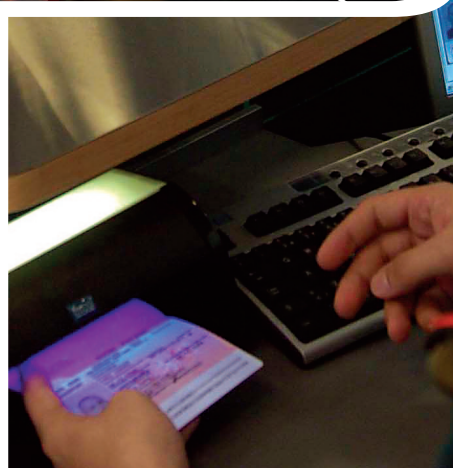
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security to be free

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Context

Reinforcing security at border crossing points is the first line of defense against the increased threat of terrorism following the 2001 attacks on the US. With illegal immigration and identity theft on the rise, and the resulting battle between security and fraud, authorities are being forced to re-evaluate their entry and exit points.

Moreover, the latest national and international requirements regarding ePassports incorporating biometric identity data are also pushing countries to modernize frontiers, and nation states are also feeling the strain from increasing passenger numbers.

The challenge for governments and agencies the world over is to adapt to these new threats, new technologies and increased passenger throughput but without compromising security.

Drivers

> Strengthening security at borders

From October 2006, citizens of Visa Waiver Program member countries need visas to visit the US unless they have an ePassport. VWP countries and many other countries aiming to reinforce their ID document security are currently deploying ePassports, which are becoming increasingly widespread.

The next step after securing travel documents is securing borders, and border controls will have to be able to read and verify the authenticity of ePassports.

> Preventative Immigration control

Many countries are aiming to establish better screening of border entries and exits to cope with illegal immigration. Several initiatives and important programs have already been launched for automated pre-screening or online verification checks against biometric databases (AFIS).



The European Union has set its own schedule for deploying second-generation ePassports: from mid-2009, all new passports must incorporate both facial and fingerprint data.

Indeed, the EU uses a biometric-enhanced version in the central base for exchanging visa information between member states, known as the Visa Information System (VIS). Another EU example is the new Schengen biometric SIS-2 (Schengen Information System) watch list, which is used to store and disseminate information on extradition, on nationals who have been refused entry to the EU and on individuals subject to any European arrest warrant or under surveillance for criminal activity. A similar biometric system is deployed in the USA, called the US-VISIT program.

These new programs mean that border controls will have to scan traveler's fingerprints and apply online verification checks against several biometric white- or blacklists.

> Facilitating passenger processing

In addition to having to respond to increased security requirements with the introduction of new ePassport technologies, the increase in the number of air passengers (+5% in 2006 according to the ACI) means it is essential for authorities to find a way to facilitate passenger processing. It is also anticipated that new large-capacity planes, such as the A380, will worsen this bottleneck problem at airport border controls.

Solutions like e-ticketing, self-service check-in, boarding and fast lanes for border control are increasingly being implemented. Initiatives like the International Air Transport Association's (IATA) SPT (Simplifying Passenger Travel) or private initiatives such as registered traveler programs are also aiming to provide expedited security screening for legitimate passengers.

We also estimate that the biometric ePassport verification process, including RF chip reading and all new biometric verifications, will add at least 50% to the average manual inspection time, and in some cases, will double it. So the introduction of Biometric electronic documents will increase security but also lengthen queues at borders.

There are two solutions to handle this problem:

either add more inspection officers or deploy automated border control systems to facilitate border crossing. That's where Gemalto's expertise comes into play with the **Coesys eBorder Gate** solution we developed in tight collaboration with a European country.

The Coesys eBorder Gate

The Coesys eBorder gate slashes inspection time and human intervention to help authorities cope with the increase in the number of air passengers. This gate system is selfservice, and most of the time several stations are supervised by one single inspector. This gate system spells the end for long queues at airport border controls.



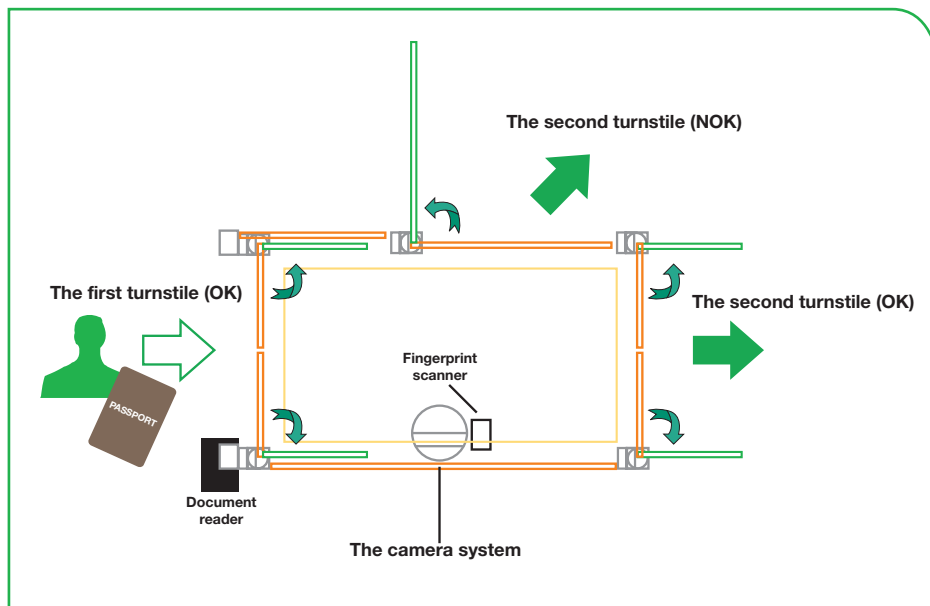
On the other hand, securing borders is essential, and is non-negotiable in today's world. That's why Gemalto has leveraged its experience in secure documents to develop the Coesys e-Border Gate, which applies the most exhaustive procedures in terms of security features, verification and secure traveler identification.

> Gate application

During the entire process, the traveler is guided by help screens, which advise them on how to proceed.

The traveler places their travel document on a document reader. The system verifies the validity of the passport and the user's right to enter the gate against the necessary database. The system performs a complete document authenticity verification and reads the entire document.

After the traveler enters the gate, a system checks there is only one person inside. Then the traveler, stands in front of a camera system and/or places either one or both index fingers on a fingerprint scanner.



It then carries out facial recognition and/or fingerprint matching to verify the traveler's identity against the document biometric data itself, or against a biometric traveler registration database.

At the same time, the personal and biometric information can also be used to carry out online verification. The system carries out an on-line check of the traveler's permission to enter or exit the country against textual or AFIS watch lists (SIS-2, VIS, Interpol etc.). The system also allows for the auditing of entry/exit on the territory. This is a precious source of traveler information that can be used for a range of applications, including police investigations.

Finally, if all controls are successful, the second door is opened. In the case of a problem during the control process, the side door is opened and the traveler is directed to a border control desk.

> Inspector involvement

The inspector can monitor and supervise what happens on several gates (four gates per inspector for instance) on a watch screen. Each time a person enters a gate, the inspector is warned and can follow the progress of the security check step-by-step, and is finally notified of the security check's success or failure. This Inspector is also authorized to control and administer the gates (blocking and opening entries/exits etc.).

> Automated border control: offering a better service and enhanced security for the public

Compared to a traditional border control process, automated procedures offer several benefits for travelers, authorities, airlines and airports alike:

Simplified travel

- Fast, simple and stress-free travel for all low-risk individuals benefiting from the program
- Faster passage through borders

Staff focused on "risky" groups

- Slashing inspection time, and allowing for a reallocation of staff to cope with increased travel
- Slashing human intervention so that staff can be used more efficiently to focus on the needles in the haystacks

Highly secured and systematic control

- The highest level of security procedures are applied systematically for each traveler
- Avoiding any kind of human error

Coesys eBorder Solutions

The Coesys eBorder Solution is a complete Border Control system. It can be adapted for implementation in all kinds of different border control situations, including airports, harbors and green borders.



Gemalto Coesys eBorder Solutions are available for border control entry/exit processing with biometrics matching, for airline, cruise or train checking and boarding points.

The **Coesys eBorder Gate** is an automated border control which slashes travel document inspection time and human intervention, allowing inspection time to be spent focusing on potentially sensitive travelers.

The **Coesys eBorder Station** is used for border control solutions that offer comprehensive checks at a competitive price. It is ideally suited to small and medium-sized airports, seaports and frontier checkpoints.



It includes a full-page scanner and fingerprint scanner, which analyze and validate electronic documents and automatically identify the document owner.

The user interface is adapted to manual verification and offers the possibility to see the document under different illuminations; to zoom in or out to check graphical security features and to verify them against a reference database.

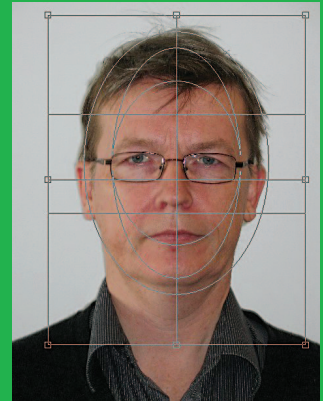
The **Coesys Enrollment Solution** can be used to register travelers authorized to use the Coesys eBorder Gate.

This Enrollment aims first to conduct an interview and the necessary identity verifications to ensure the traveler complies with the program membership rules. Then the system captures the traveler's personal data, face and fingerprints, and stores this information in a biometric traveler registration system.

During the control, the Coesys eBorder Gate verifies the traveler's membership, and matches their fingerprints against the biometric registration database.



High resolution scanners (all above 400dpi) allows a very detailed inspection to assist the immigration officer to take the right decision.



Today, the first generation of ePassports integrates in the passport booklet a contactless chip containing holder's personal information and facial image. Tomorrow, the second generation of ePassports will also securely store fingerprint images on the passport microprocessor.

■ Why the Coesys eBorder solution?

> FOR SECURITY

Securing borders is essential, and is non-negotiable in the modern world, and that's why Coesys eBorder Solution offers the highest level of security.

State-of-the-art document authenticity verification

The Coesys eBorder Gate offers the most extensive electrical and graphical security features verification to ensure document authenticity including:

- The latest ICAO chip authentication mechanisms:
 - BAC: active authentication, passive authentication
 - EAC: chip/terminal authentication, grant secure access to fingerprint
- Verification of the certificate confidence chain against a trusted party before any use
- Document Readers for eBorder Station and eBorder Gate which can apply automatic graphical features checking (e.g. pattern recognition) under all available illuminations (infrared, UV, Visible light, coaxial light)

Stringent biometric identification

- State-of-the-art fingerprint sensor accuracy:
 - Using the industry best spoof detection technology to detect fake and spoof fingers such as latex, silicone and gelatin
 - That tolerates variations in skin: dry, wet, dirty, aged
 - And works under high ambient light
- Efficient face recognition technology:
 - With a multiple camera system with automatic height adjustment
 - And a recognition rate ensured through consistent natural lighting and a roof
- A huge reduction in false acceptance and false rejection rates (FAR and FRR) through the possibility of a multi-modal biometric system (Face + 2 Fingerprints)

A secure gate design

The Coesys eBorder Gate offers a closed environment and creates a secure area.

- Travelers cannot jump the fence to escape
- Travelers benefit from a private area for the control
- This closed design offers the possibility to adapt a very powerful uniqueness verification system. This reliable and proven system verifies there is only one person inside the gate using a combination of light beam sensors and volume coverage meters



> FOR EFFICIENCY

The Coesys eBorder Gate is fast, simple and stress-free for travelers.

Available for all travelers

- The Coesys eBorder Gate is operational with all existing ePassports and is compatible with a wide set of electronic travel documents such as visas and ID cards. This ensures the gate will function with the widest possible population
 - Compatible with all ISO 14443 type A/B chips
 - Compatible with all ICAO 9303 documents
 - System and readers have passed ICAO interoperability tests
- The Coesys eBorder Gate can rely on only one biometric feature when necessary (e.g. for those with missing fingers)
- A dedicated gate design offers full wheelchair access

High throughput

- The Coesys eBorder Gate offers fast and reliable document reading
 - Applying the maximum chip transfer rate (up to 848 kbps)
 - Document readers proposed are single-step: optical and chip reading
 - Document presence is automatically detected
 - Document readers have proved their reliability and robustness in the field
- Fingerprint innovative scanning technology captures clean images in all conditions to ensure high throughput as fewer people are rejected for the wrong reasons
- A decisive performance factor is the gate design which can include two document readers (one outside and one inside the gate) when most other similar systems only have one entry-door reader
- The Coesys eBorder Gate's throughput is less than 15 seconds for one biometric check (e.g. one fingerprint), and a few seconds have to be added for each additional biometric check

Design for easy and efficient use

- The inspector can easily monitor on-screen what's happening in several gates at the same time
- The LCD displays outside and inside the gate tell the traveler how to proceed in their native language
- Careful positioning of fingerprint and document readers and multiple camera systems that automatically adjust to a person's height also contribute to the efficiency and simplicity of the Coesys eBorder Gate solution

> FOR FLEXIBILITY

Because our experience has taught us that each border control case is particular, Coesys eBorder Solutions are flexible and can be tailor-made to fit customer needs.

Any document, any biometric

- A large range of adaptable document readers and fingerprint scanners
- Flexibility regarding the range of biometric features included (face and/or one or two fingerprints)



An adaptable gate design

- Two or three doors (with or without a side door)
- One or two document readers
- Can be completely closed or not
- Ticket/stamp printers and boarding pass 2D bar code scanning can also be added if necessary

A unique project and dedicated implementations

- A customized inspector watch screen and traveler help screen (language, display etc.)
- Integration with any type of watch list system (textual watch lists, AFIS watch list, immigration database etc.)
- Integration with any type of transit database (entry/exit audit)

Coesys eBorder solutions can easily be integrated with our traveler registration system, Coesys Enrolment.

Sealys secure documents offer physical, visual & electronic security for travel documents, ID and Health cards. In the hands of millions around the world for years, Sealys secure documents have proven their durability. With over 50 Common Criteria and 10 FIPS certificates awarded, security is at the heart of their design. Sealys innovation (world's first polycarbonate ID, first electronic National ID card, first ICAO and EU compliant ePassport, first IAS eID card...) benefits governments and citizens.

Coesys secure solutions for issuance, enrolment, border control and eGovernment applications are dedicated solutions offering performance and security. Coesys secure solutions are built from robust off-the-shelf modules. These solutions are designed and delivered by local Professional Services teams, expert in the identity business.

And because we know the success of your project does not rely on products and solutions alone, we offer **Allynis** secure services, a complete and future-proof range of operated services, including outsourced personalization and delivery. Our operational excellence is supported by strong industrial and financial engineering capabilities.

Gemalto in brief

In an increasingly connected society, Gemalto makes personal digital interactions secure and easy. We provide end-to-end digital security solutions, from the development of software applications through design and production of secure personal devices such as smart cards, SIMs, e-Passports and tokens to the deployment of managed services for our customers.

More than a billion people worldwide use our products and services for telecommunications, financial services, e-Government, identity management, multimedia content, digital rights management, IT security, mass transit and many other applications.



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