Judicial Information Service
Ministry of Justice and Security

utimaco®

Case study

Dutch Judicial Information Service facilitates border control using Utimaco HSMs

Motivation: Fast, efficient & secure border control

The demands placed on border control are increasing for different reasons, such as:

- ICAO compliance,
- adjustments to the Schengen Borders Code,
- Requirements to fight falsification and fraud, and
- non-repudiation.

On the one hand, this is due to the introduction of next-generation identity documents such as machine-readable passports or electronic IDs and, on the other hand, to the continuously growing number of passengers. Border control has to be more precise and secure and, at the same time, more efficient and faster.

Challenge: Safe traveling with short waiting times for passengers

To achieve this, automatic border control systems were put in place and can be used by passengers with electronic identity documents featuring biometrical functionalities. The Dutch Ministry of Justice and Security designed and realized a standardized infrastructure for opening and reading the chip of e-documents at border control points on land, in airports and seaports. Their goal is to process the new electronic identity documents and simultaneously reduce waiting time for passengers.

The solution: Different levels of access control with the use of Utimaco HSMs

The ministry accepted the challenge by building a nationwide standardized validation infrastructure with the use of a CVCA (Country Verification Certificate Authority) and several DVCAs (Document Verification Certificate Authorities). The terminals of inspection systems at border control points are connected to the infrastructure by a central Terminal Control Center which guarantees that no unauthorized terminals or system can validate the (biometrical) data stored on the identity documents.

Utimaco Hardware Security Modules (HSMs) are used for the terminal authentication process to help authorize the reading terminal to access the private sensitive data (like fingerprints) on the chip. The protection of an individual's personal data and privacy is of major important in this context. "We have been using Utimaco HSMs for more than fifteen years now. Since the start, they have run continuously at a high performance level, despite the fact that we've extended the requirements!" says Jeen de Swart, Senior Information Architect at the Judicial Information Service of the Dutch Ministry of Justice and Security.

The implementation: High availability, performance & data throughput capability

The Dutch eDocument verification infrastructure placed extensive demands on Utimaco's HSMs, which were considered a trust anchor. The solution has to support all necessary ICAO compliant algorithms and provide a high security environment alongside other operative requirements. The data throughput capability, performance and high availability as well as the high quality of the Utimaco CryptoServer product line ultimately led the Dutch ministry to choose Utimaco.

"We've been using some of the modules in the context of this project for seven years now, and they are still running very reliably and fully comply with the requirements," points out Jeen de Swart, who is responsible for architecture and development, underscoring the reliability of Utimaco's HSMs, which are being used in many different countries around the world.

"The experience gained from working with Utimaco, their expertise in the area of ICAO, as well as their comprehensive support of the required algorithms, were the decisive factors for choosing to collaborate with them for this project," sums up Cor de Jonge, manager of the PKI department of the Judicial Information Service as part of the Ministry of Justice and Security in the Netherlands.

The technology solution: Different levels of access control, using hardened security only in exceptional cases – but then thoroughly

The aim was to build an infrastructure that provides varying levels of examination for legal electronic identity documents, in addition to Basic Access Control (BAC) or SAC (Supplemental Access Control) also called PACE (Password Authenticated Connection Establishment) combined with Extended Access Control (EAC).

Whereby BAC/SAC runs an active authentication that validates whether the chip in the identity document is genuine, and then a passive authentication that verifies the digital signature of the chip – EAC creates a secure channel between the reader and the chip that guarantees the reading terminal is authorized to access the chip and its data. Utimaco's HSM technology, the Utimaco CryptoServer, provides the root of trust within the protocols for reading sensitive personal data (such as personal details or fingerprints).

About the Judicial Information Service of the Ministry of Justice and Security of the Netherlands

The Judicial Information Service is a Dutch governmental organization concerned with providing correct and reliable information about the identity of a person. The Judicial Information Service does not only serve as a trustworthy source of information, but also contributes to the creation of systems and information chains which can identify persons or documents. The Judicial Information Service initiated the creation of a system that verifies official documents by means of the chips on eDocuments and fingerprints on eDocuments (also known as the Extended Access Control (EAC)). The appropriate infrastructure is an essential asset to officers in the field to verify the integrity and authenticity of these chips and fingerprints. This infrastructure is exclusively to be controlled by a trusted government source and needs to be fully compliant to (international) ICAO and EU standards to cover all issued documents.

About Utimaco

Utimaco is a leading manufacturer of HSMs that provide the Root of Trust to all industries, from financial services and payment to the automotive industry, cloud services and the public sector. We keep cryptographic keys and digital identities safe to protect critical digital infrastructures and high value data assets. Our products enable innovation and support the creation of new business by helping to secure critical business data and transactions.

Founded in 1983, Utimaco HSMs today are deployed across more than 80 countries in more than 1,000 installations. Utimaco employs a total of 200 people, with sales offices in Germany, the US, the UK and Singapore. For more information, visit https://hsm.utimaco.com/