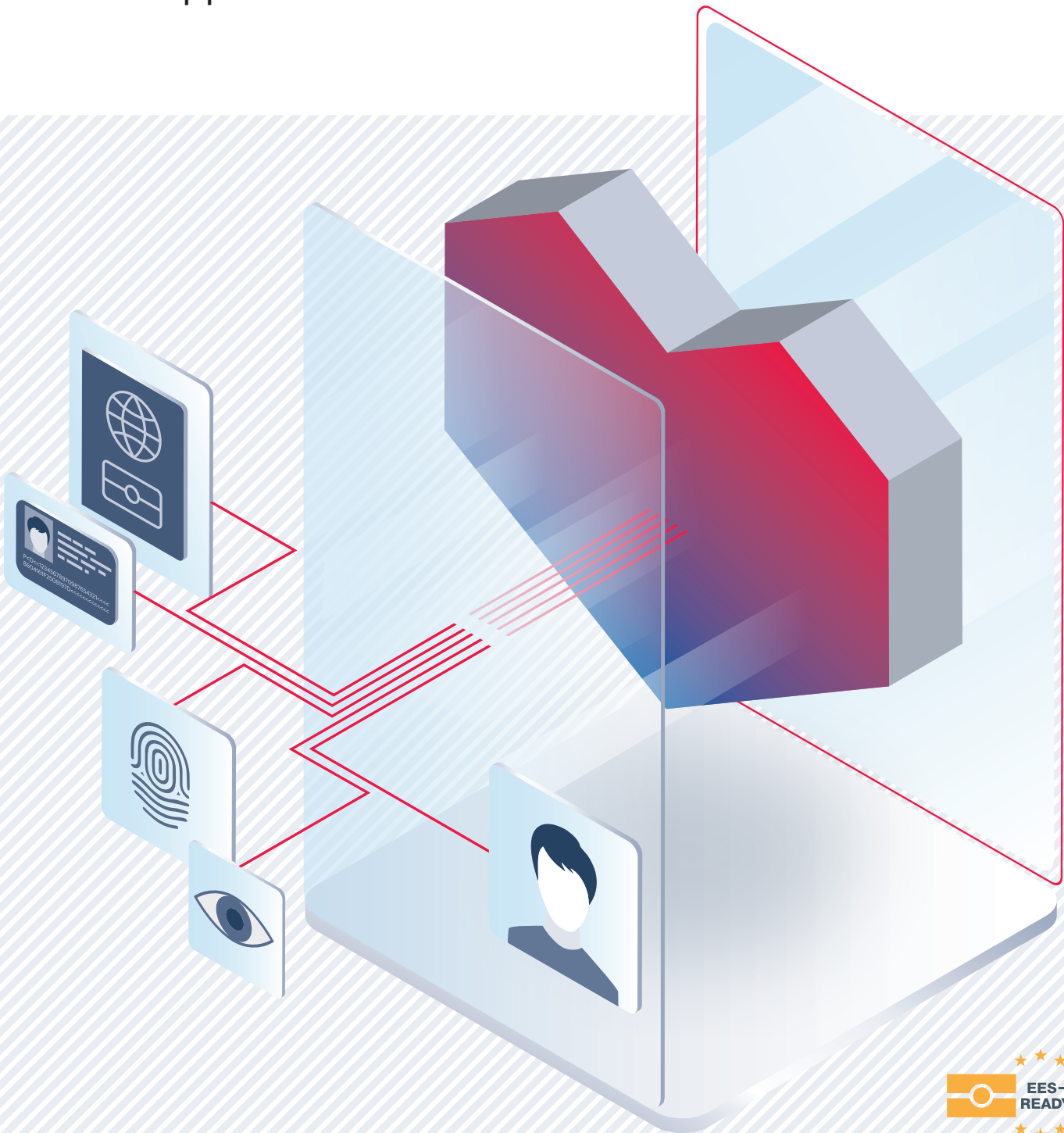


# Biometric Middleware

Flexible Platform for Biometrics  
and eID Applications



# As a joint project with the German Federal Office for Information Security (BSI), secunet biomiddle is internationally recognised as the reference implementation and preferred architecture for use of biometrics in ID documents.

secunet biomiddle is a flexible and easily expandable platform for biometrics and eID applications. By making use of internationally standardised interfaces, secunet biomiddle enables modular use of biometric technologies also in complex application scenarios. The partial exchange or the upgrade of partial components in the entire system is thus possible at any time. secunet biomiddle communicates with client applications via a service-oriented interface; this makes the middleware independent of system platforms and programming languages.

## Modular architecture

The modules of secunet biomiddle combine and provide the functions of the respective area and, thus, allow for access to ID documents, biometric capture, matching and verification components as well as to external systems. The base technologies used are integrated into the middleware with a plug-in mechanism. This way, secunet biomiddle can integrate the best possible technology available on the market into the various applications. Thus, solutions exactly meeting the individual requirements of the respective application emerge. Due to the exchangeable plugins, the flexibility and expandability of the entire system is maintained.

## Approved by public authorities

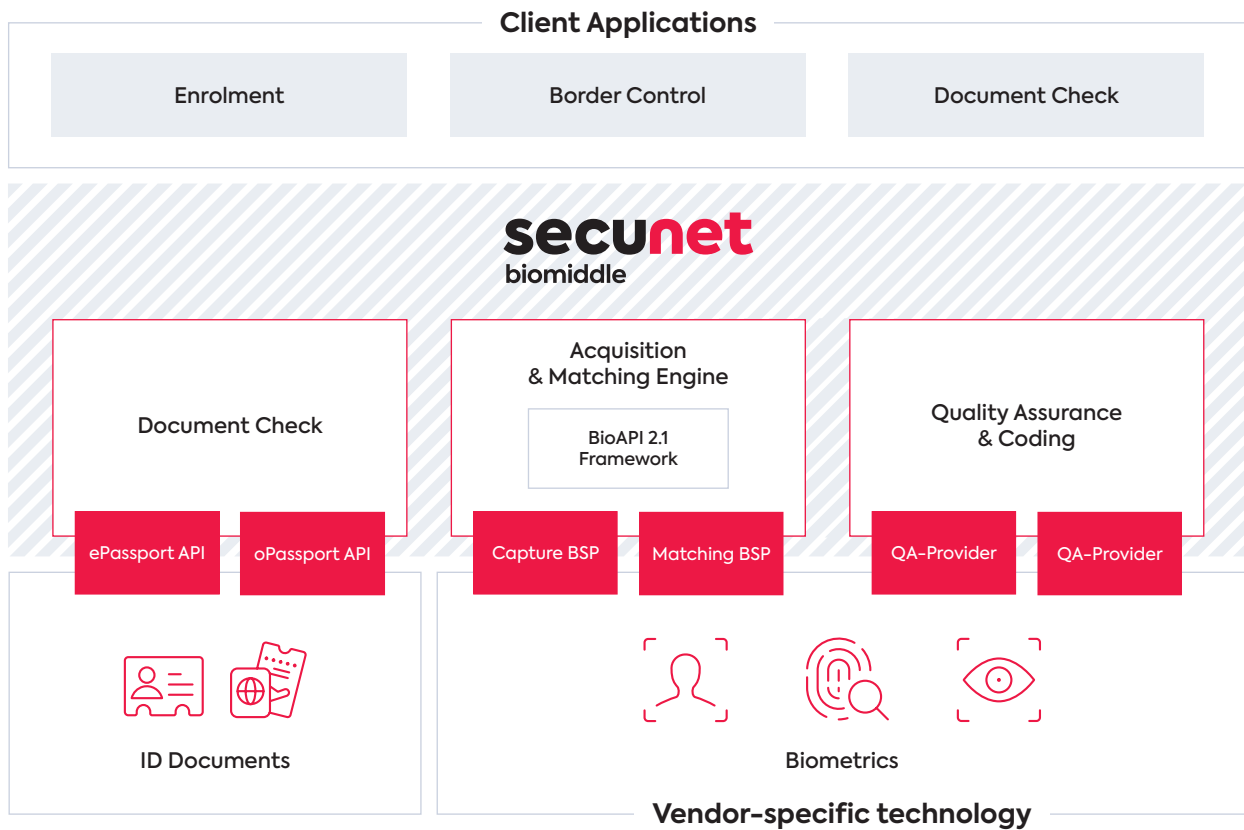
secunet biomiddle is a joint project of secunet and the German Federal Office for Information Security (BSI) and is the internationally preferred architecture and reference implementation for using biometrics in the scope of eID documents. The middleware has become established in many administrative capture and border control projects, both in Germany and beyond.

## Easy integration into existing applications

secunet biomiddle communicates with client-applications via a service-oriented interface; i.e. the functions can be provided, or rather accessed through the network, irrespective of system platform and programming language of the application. Due to the service-oriented interface, several applications can also access the imbedded hardware- and software components at the same time and without capacity-contention.

## Clearly defined interfaces

Biometric hardware- and software-components are imbedded and used by secunet biomiddle via an integrated BioAPI 2.1 framework according to ISO/IEC 19784-1. The interface and the behaviour



of these so-called Biometric Service Providers (BSP) are clearly defined through the standard. Hence, each technology for which a BSP exists or for which a BSP is feasible can be used.

Electronic ID documents are read out by secunet biomiddle via the BSI specified ePassportAPI. As an integral component of the Golden Reader Tool (GRT), it is internationally recognised as the reference implementation for reading out and verifying electronic ID documents. secunet biomiddle also supports reading out and verifying of optical features of the passports based on the performance of the passport-reader used.

Quality algorithms and background systems are integrated into the middleware via a mechanism based on BioAPI 2.1 in secunet biomiddle. In control infrastructures, secunet biomiddle can cooperate with PKI systems such as a Terminal Control Centre (TCC). Here, master lists of the ICAO PKD and EAC-keys compliant with BSI TR-03129 are used. Additionally, customised solutions, like using smart cards, are possible too.

## Target platforms

secunet biomiddle runs under all supported Windows platforms.

## Benefits

- Easy integration into existing systems and applications
- Suitable for all leading technologies and manufacturers
- Also available for mobile platforms (Android, iOS)

## References



### secunet biomiddle enhances border control and visa applications in Estonia

The biometric middleware for more than 500 workstations in the Ministry of Foreign Affairs, the Border Control Authority and Police Service Bureaus of Estonia comes from secunet:

In the embassies, secunet biomiddle optimises the visa application process for more than 150,000 times per year. It manages the components used to capture the biographical and biometric data required for VIS, EURODAC and the document management system's fingerprint enrolment as well as for EES in the future.

At border control checkpoints, secunet biomiddle enhances stationary and mobile border control. It coordinates optical and electronic document checks, as well as standard biometric functions for data acquisition, quality assessment and verification.

In any application, the High Level Document Check Interface (HLDC2) of secunet biomiddle ensures—in accordance with the Technical Guideline TR-03135 of the German Federal Office for Information Security—the logging of optical checks and evaluation of the results according to the latest standards.



### Europe's most modern system for Visa and document control launched at the Zurich airport

As part of the "Greko NG" project and as a general contractor for the Zurich cantonal police, secunet has completely revamped the existing border control infrastructure at the Zurich Airport and equipped around 100 workstations with a modular border control system: secunet biomiddle is at the heart of this new solution. This middleware is a standard-compliant core component that forms the interface between the passport reader, the fingerprint scanner and the border control application while ensuring modularity.

The secunet bocoa border control application has been tailored perfectly to the needs of the Zurich cantonal police. Thanks to the ergonomically designed user interface, border officials can see all important data at one glance during identity checks.

The new system, which is continuously improved, enables the data from all machine-readable ID documents to be fully examined. The nearly 350 employees of the Zurich cantonal police were trained prior to the roll-out and are well prepared for the new processes. The border control system's modularity allows the Zurich cantonal police to easily implement any future EU projects, such as the "Entry/Exit System" (EES).

## Selection of supported devices and moduls

Passport reader	Models
Gemalto	AT9000, KR9000
ARH	ComboSmart, PRMc
Bundesdruckerei	Visotec Expert 600, Visotec Expert 800/810
Desko	ICON, Penta
Regula	70x4, 70x4M, 70x8
Biometric sensors	
Random webcams	Based on Windows DirectShow
Canon	EOS digital cameras
Cross Match Technologies	Verifier 320, Guardian, Patrol, Patrol ID
Dermalog	F1, ZF1, ZF2, LF10
Integrated Biometrics	Columbo, Watson, Kojak, Five-O
Jenetric	LiveScan Quattro, LiveScan Quattro compact
Suprema	RealScan D, RealScan G10
Wacom	STU Signature Pads
Biometric algorithms	
Cognitec	FaceVACS SDK
NIST	NFIQ/NFIQ2, WSQ, ANSI/NIST-ITL
VIS-BMS	USK Kit 1-4 USK Kit 1-4
Neurotechnology	VeriFinger, VeriLook
Dermalog	ICAO Check

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