

cv act *ePasslet Suite*

Modular Java Card applet suite for eID documents

Product Brief



cv act ePasslet Suite is a Java Card applet suite providing a complete set of common applications for electronic identity cards, electronic travel documents, electronic driving licenses, and other similar documents. It supports many international standards.

Management Summary

Identity cards, passports, driving licenses and other identity documents can be equipped with a small computer chip. The result is referred to as electronic identity document (eID). The embedded chip enhances security and can be used for many interesting applications, for instance computer login, automated age verification, and proof of identity on the internet.

Electronic identity documents have become very popular in recent years with dozens of countries already issuing machine readable electronic passports. Several countries are also issuing electronic identity cards in addition. With many countries planning eID projects, electronic identity documents are currently considered one of the hottest emerging technologies.

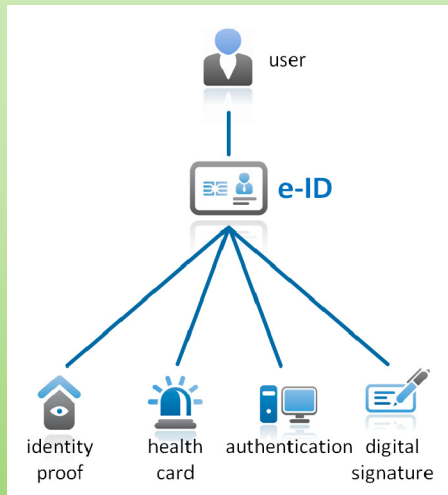
In order to realize eID applications it is necessary to implement them on the identity card chip.

cv act ePasslet Suite, a product developed by cryptovision, is aptly suited for this purpose. The suite consists of a collection of Java Card applets, with each implementing some dedicated eID functionality, making work with these chip secured documents both simple and secure.

cv act ePasslet Suite applets are realized as a part of the ROM mask of a Java Card enabled smart card which deliver value added applications, like standards based authentication or digital signature generation. The collection includes applets for the Basic Access Control (BAC) and Extended Access Control (EAC) with Supplemental Access Control (PACE), ePKI, International Drivers License, European Health Insurance Card, and more. With modular flexibility, new applets can be introduced to add or enhance desired functionality.

cv act ePasslet Suite is the ideal solution for authorities intending to enhance eID documents with additional functionality.

Background



What Is An Electronic Identity Document (eID)?

An electronic identity document (eID) is a passport, identity card, driver's license or similar document equipped with a smart card chip. This smart card chip may be conventional or contactless. Electronic identity documents can be used for many applications, including: proof of identity on the internet, automated age verification, digital signatures, encryption, physical and logical access, digital payment, and even storing health insurance information.

Electronic identity documents have become the de facto standard. Since 2004, the majority of countries issue Machine Readable Travel Documents (MRTD) as specified by the International Civil Aviation Organization (ICAO). Many states such as Austria, Belgium, France, Germany, Malaysia, Saudi Arabia, Spain, and UAE have introduced electronic identity documents.

Electronic identity documents are considered an important future technology with dozens more countries planning to introduce electronic identity cards in the near future. Several countries have started planning or are implementing electronic health card projects. Driving licenses, student IDs, and many other identity documents may also become electronic in coming years. With identity documents typically having long validity periods it is essential to thoroughly plan applications and leverage adaptable solutions.

The Basics

cv act ePasslet Suite

cv act ePasslet Suite is a solution for realizing applications on electronic documents in a convenient and cost-effective manner. cv act ePasslet Suite supports both contactless and conventional smart cards with this flexibility making both practical and functional for many diverse purposes, such as: national identity cards, drivers licenses, security access badges, or health cards.

Java Card Based

cv act ePasslet Suite is based on the Java Card standard and consists of a collection of Java Card applets fused into the ROM mask of a Java Card enabled smart card for specific functionality. Since the applets are modular, functions can be easily mixed and matched to the demands of a specific application.

ICAO

cv act ePasslet Suite can be used to completely implement a Machine Readable Travel Document (MRTD) as specified by the International Civil Aviation Organization. cv act ePasslet Suite includes applets for both the MRTD protocol standards, Basic Access Control (BAC) and Extended Access Control (EAC).

National Identity Cards

cv act ePasslet Suite features applets for the basic functionality of European Citizen Card (EuCC) standard as well as additional applets for alternative national EuCC profiles, for example France. Of course, it is also possible to implement a national identity card, which is not EuCC compliant, by leveraging the included National ID Standard applet.

Other Applications

Electronic health cards and electronic drivers licenses are already being used in some countries. cv act ePasslet Suite includes both International Drivers License (IDL) and a European Health Insurance Card (eHIC) applets to streamline this process. Multiple applets can be loaded onto the same card with shared resources. If additional features are desired, new applets can be created with it even possible to load new applets onto previously issued cards.

CC EAL 4+ Certification

The most critical components of cv act ePasslet Suite are in the process of being CC EAL 4+ certified. Further certification is taking place as new applets are introduced to meet evolving demands and changing criteria.

The Technical Part

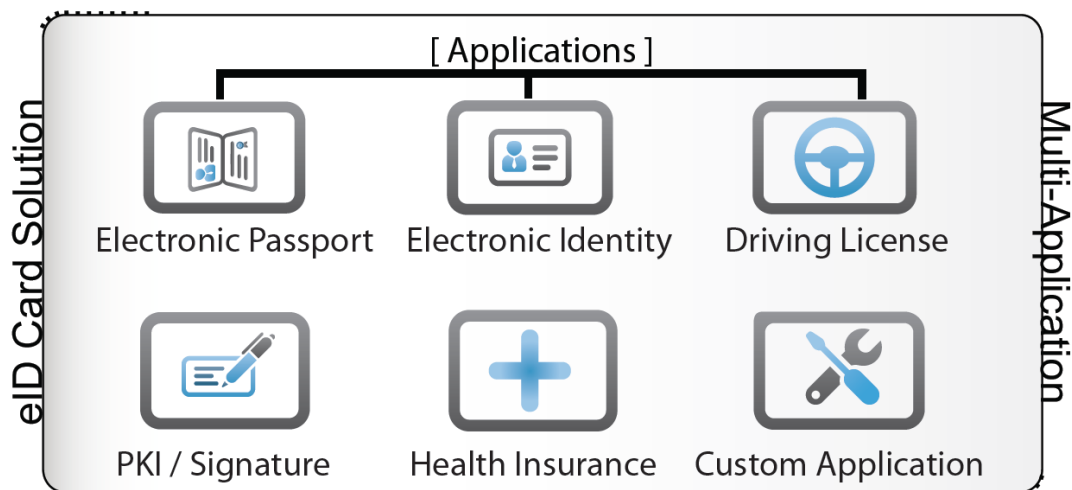
The Architecture

cv act ePasslet Suite is based on the Java Card standard. It consists of a collection of Java Card applets implementing a wide range of eID functions. The cv act ePasslet Suite is comprised of the following applets:

- *BAC Applet*: This applet implements the Basic Access Control (BAC) protocol as standardized

on-card 3rd party biometrics can be incorporated to further enhance security.

- *National ID Standard Edition Applet*: This applet combines Extended Access Control (EAC) with ePKI to enhance national identity cards with functionality like digital signatures.
- *European Citizen Card Applet*: European Citizen Card (EuCC) specification is an EU standard aim-



cv act ePasslet is a modular Java Card applet suite for electronic identity documents. Virtually any imaginable eID application (including electronic passport and electronic driving license) can be implemented with it.

by ICAO (DOC 9303 specification). BAC is one of the most important eID card protocols.

- *EAC V1 & V2 Applet*: These applets realize the Extended Access Control Protocol (EAC), which was introduced by the German federal information security authority and is now also a part of the ICAO specification. Both the BAC and the EAC applets provide full support for the Logical Data Structure (LDS) as defined by ICAO. cv act ePasslet Suite is the first Java Card based solution that offers Supplemental Access Control (PACE).

- *ePKI Applet*: This applet provides PKI (Public Key Infrastructure) functionality including digital signatures, key exchange, and asymmetric encryption, with both RSA and Elliptic Curve Cryptography (ECC) algorithms supported. Additional

ing to harmonize national electronic identity cards in Europe. This applet implements the required elements of a European Citizen Card. Alternate national profiles are also available.

- *eHIC Applet*: The European Health Insurance Card (CWA 15974) is planned as a EU standard to unify national solutions. This applet implements this standard.

Supported Systems

cv act ePasslet Suite is portable to any Global Platform compliant Java Card. A performance-optimized version is available as ROM-masked solution on NXP JCOP with 40/80 Kbyte of EEPROM. The ROM mask approach frees nearly the entire EEPROM memory for user data.

Additional Applets

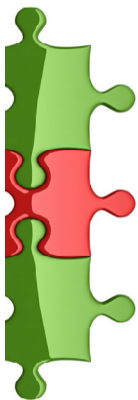
cryptovision can develop new applets which are tailor-made for the customer's needs. Additional development tools ensure that customers can also develop applets of their own. The current library of existing applets is a part of a standard ROM mask, which ensures minimal EEPROM utilization. Additional applets can either be stored in EEPROM or in a custom ROM mask.

The Market Part

Success story

cv act ePasslet Suite is used by Austria Card, one of Europe's leading smart card manufacturers. Austria Card uses cv act ePasslet Suite for the multi-application electronic identity card of Rwanda (East Africa). Rwanda, which has 8.9 million inhabitants, is one of the first nations in Africa deploying an electronic identity card.

The Rwanda ID project is a perfect example for the flexibility of cryptovision's cv act ePasslet Suite. The project initially selected some basic applications, including electronic identity checking with BAC, but later went on to add functionality to store information about driving license, immigration data, and further personal information, even involves the migration to an additional authentication method. Despite the changing specifications, the flexibility of cv act ePasslet Suite ensured the ability to deliver a solution capable of meeting these demanding requirements.



Customers

cv act ePasslet Suite is used by these following customers amongst many others:

- **Bundesdruckerei:** The national German security printing house licensed the cv act ePasslet Suite to enhance their electronic identity card (eID) portfolio.
- **Electronic identity card in a newly industrialized country:** An international company specializing in large-scale card projects uses cv act ePasslet Suite for an electronic identity card system in this emerging market.

cryptovision

cryptovision is a leading supplier of innovative IT cryptographic security solutions. Based on its 10 year market experience and broad background in modern cryptographic techniques, such as Elliptic Curve Cryptography, all cryptovision products provide the most state-of-the-art and future-proof technologies. The company specializes in lean add-on components which can be integrated into nearly any IT system to gain more security in a both convenient and cost-effective way.

From small devices like citizen eID cards, all the way to large scale IT infrastructures, more than 30 million people worldwide make use of cryptovision products every day in such diverse sectors as defense, automotive, financial, government, retails and industry.



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