



**Global  
Platform®**

# *Secure Elements for Developers*

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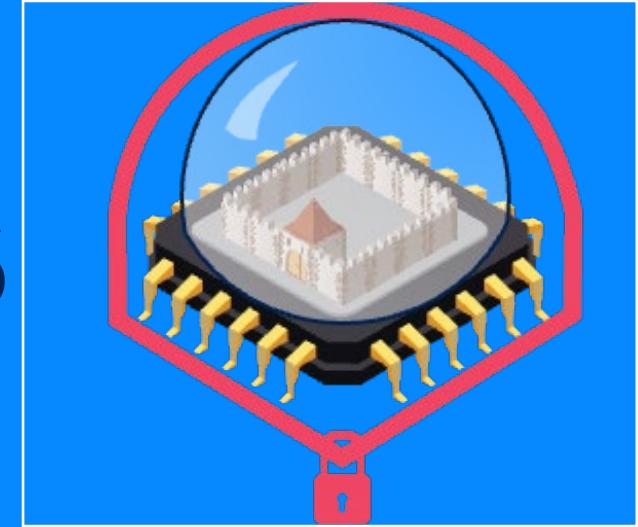


18<sup>th</sup> November to 16<sup>th</sup> December

**2025  
Webinar  
Series**



# Secure Elements

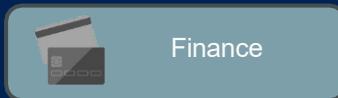


**Tamper-resistant environment** within a device, implemented as a *removable, embedded, or integrated* component.

It combines hardware, firmware, and a **root of trust** to deliver **strong security** across a wide range of use cases. SEs protect sensitive data and operations from both physical and logical attacks, ensuring a trusted foundation for secure applications.



# Typical Use Cases



## Finance

- Contact / contactless payment
- Loyalty Applications



## Telecom

*Most mobile network operator groups deploy Java Card SIMs*

- Network Authentication  
2G, 3G, 4G, 5G, LTE-M
- Optimized NW Management
- Subscription Management



## ID, Biometry & Access Control

- National ID / Passports / Drivers License
- Military ID, Organization ID,
- Healthcare eID



## Transport

- Transit cards
- Increase of multimodal transport systems



## Mobile Payment

- Contactless payment on Mobile Phones
- Secure online payment
- NFC Mobile ticketing, payment and loyalty



## Wearables and M2M

- Device Connectivity Management
- Worldwide roaming
- Payment
- Health Data protection
- Digital Key

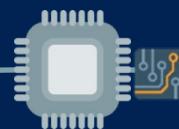


## IoT Security

- Device Attestation / Integrity
- Device Credentials Protection
- Secure Peripheral Access
- Secure Cloud Service authentication
- Automated Device identity provisioning
- Secure PKI Certificate Storage



## Removable Secure Element



## Embedded Secure Element



## Integrated Secure Element

# GlobalPlatform Card Specifications



(GPC\_SPE\_034) explains how content management is performed on a Secure Element, outlines the roles defined by GlobalPlatform for managing and governing that content, and describes the specific responsibilities and functions assigned to each role

Additional Features are standardized in Amendments

- There are currently 12 Amendments (A -> M)

# GlobalPlatform Configurations

A configuration serves as an **implementation guide** for one or more **specifications**.

It is **tailored to a specific market or operational context** (e.g., infrastructure, security requirements).

It may define **dedicated mechanisms** and commands required for that particular context.

This helps **ensure consistent, secure, and interoperable implementations** across targeted environments.

This is the basis for the Test suite development and associated functional certification



Accredited  
ISO/IEC 17065



## SAM

### SAM (Secured Applications for Mobile)

Enables hosting 3<sup>rd</sup> party applications, such as the WSCA, on (e)SIMs independently of the GSMA or Mobile Network Operator

*SAM Configuration, v1.0 (March 2024)*

Two EUDI Wallet enablers

## CSP

### CSP (Crypto Service Provider)

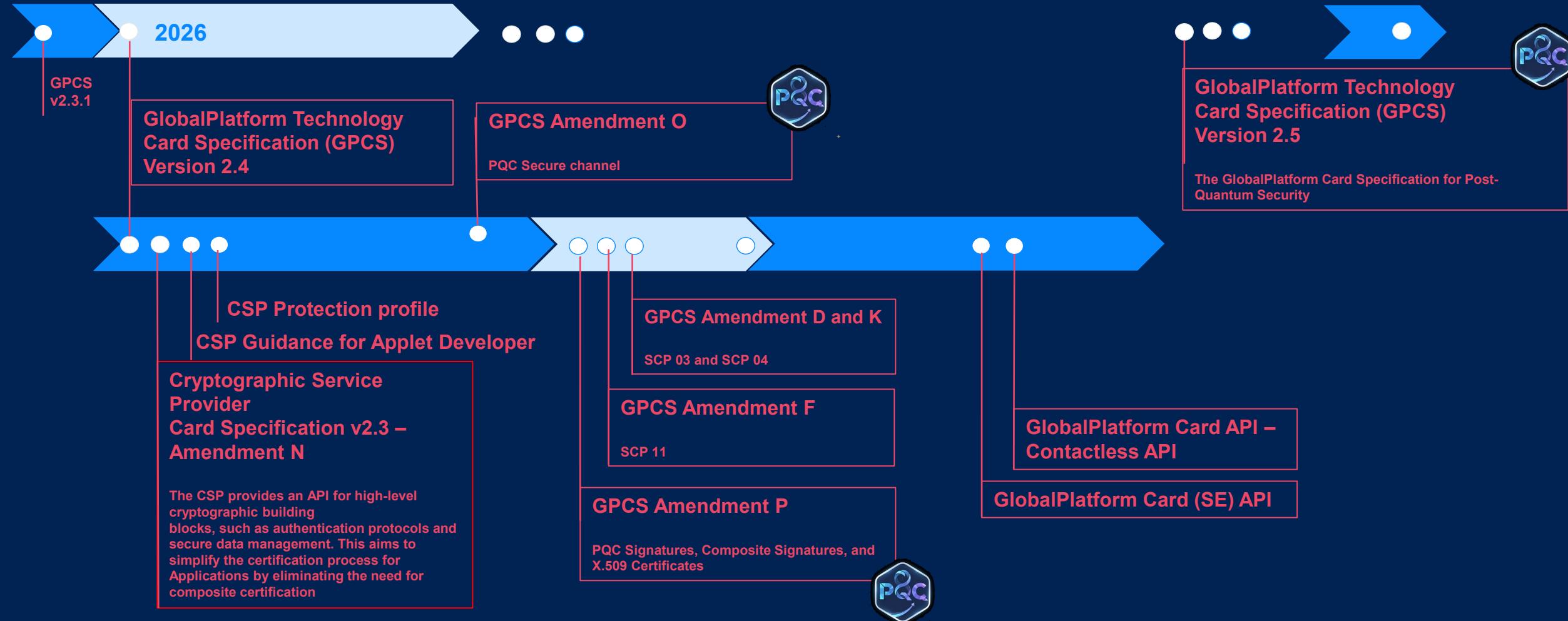
Enables post-issuance installation of an EUDI Applet (WSCA) without the need for composite certification, **while the combined security of the applet and the CSP still achieves an overall security level comparable to EAL4+ VAN.5**

*GP Card Specification – Amendment N (soon)*

- Designed for future use with EUDI, but **equally relevant for broader digital wallet and identity ecosystems.**

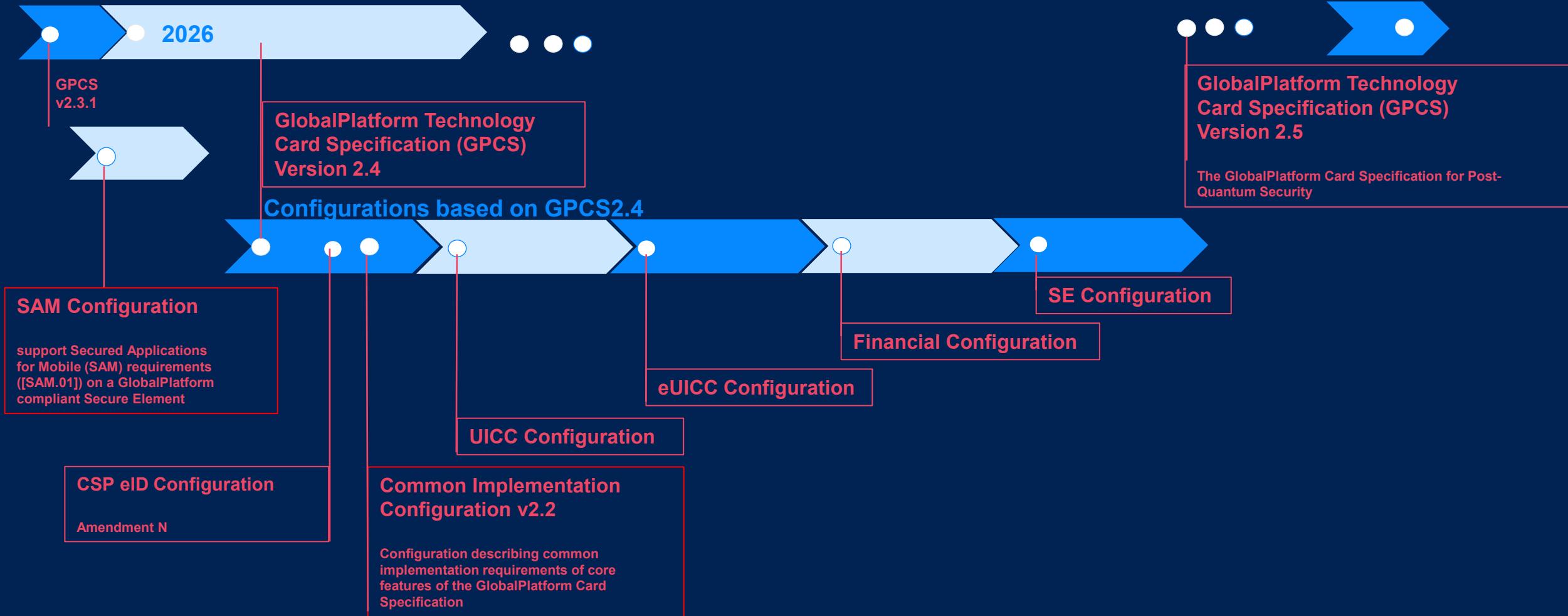


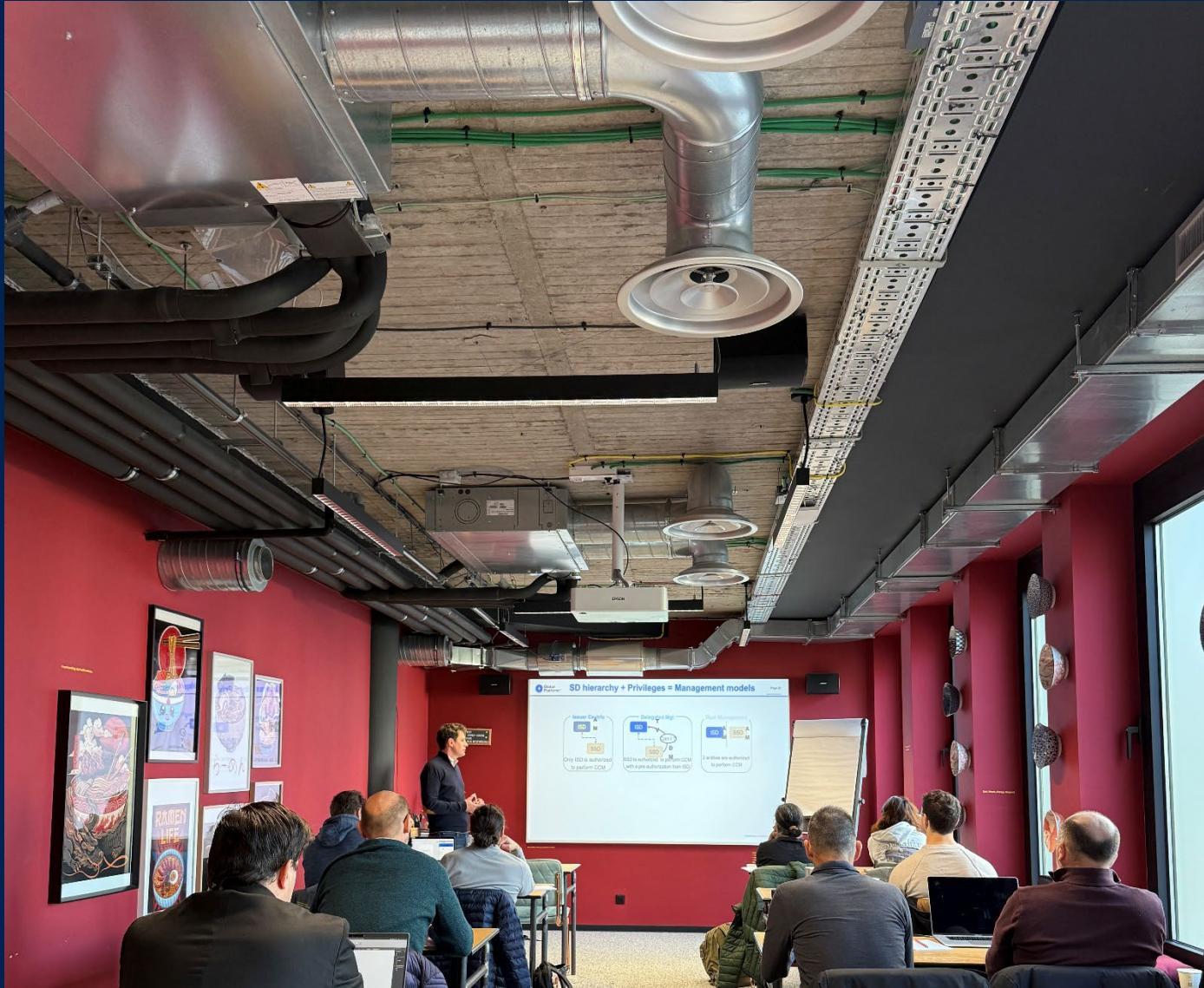
# Secure Element Technology Roadmap





# Secure Element Technology Roadmap





# Secure Element Training

# Overview of the GlobalPlatform Secure Element curriculum

## Training Roadmap Overview



1) Secure Element Foundations



2) Market-Specific SE Implementations



3) End-to-End Deployment Skills / Implementation

## 2-Day Secure Element



CORE

### Build the Core



- SE architecture & lifecycle
- SE Specifications
- Understanding configurations and Process of certification



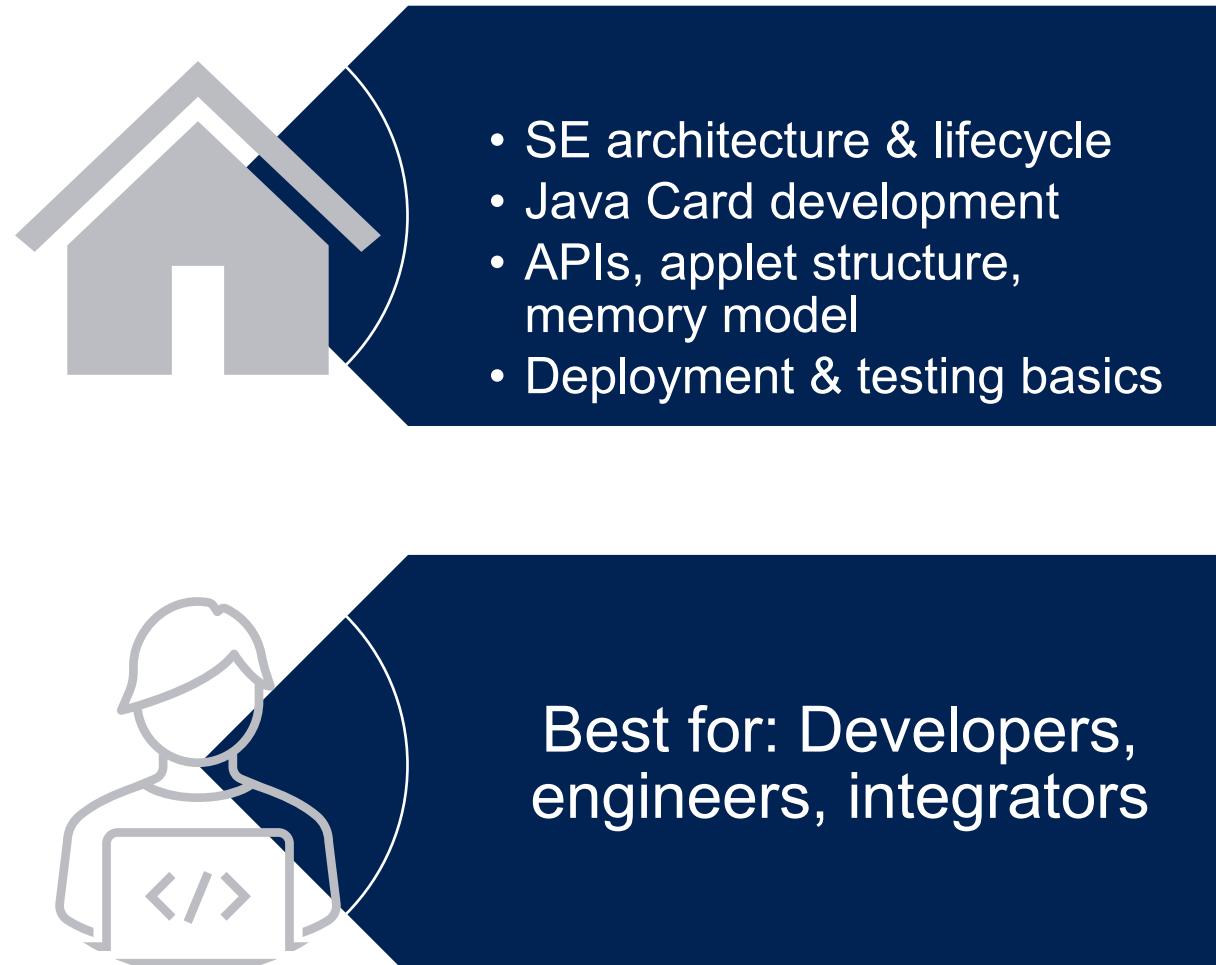
Best for: Developers,  
engineers, integrators

## Secure Element for Developers (Java Card)

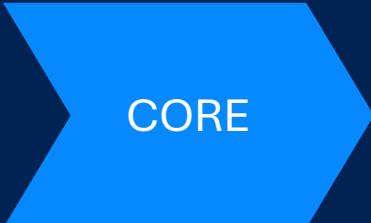
CORE

### DEVELOPMENT the APPLICATION to your SE

- SE architecture & lifecycle
- Java Card development
- APIs, applet structure, memory model
- Deployment & testing basics



**SPECIALIZATION:**  
**ID, PAYMENT &**  
**CONTACTLESS**



CORE



SPECIALIZED

## Mobile Contactless / Payment Training and Mobile Identity Training



- EMV & mobile-payment ecosystem
- NFC, tokenization & payment security
- Mobile wallet use cases
- Mobile eID ecosystem
- SE role in payment transactions

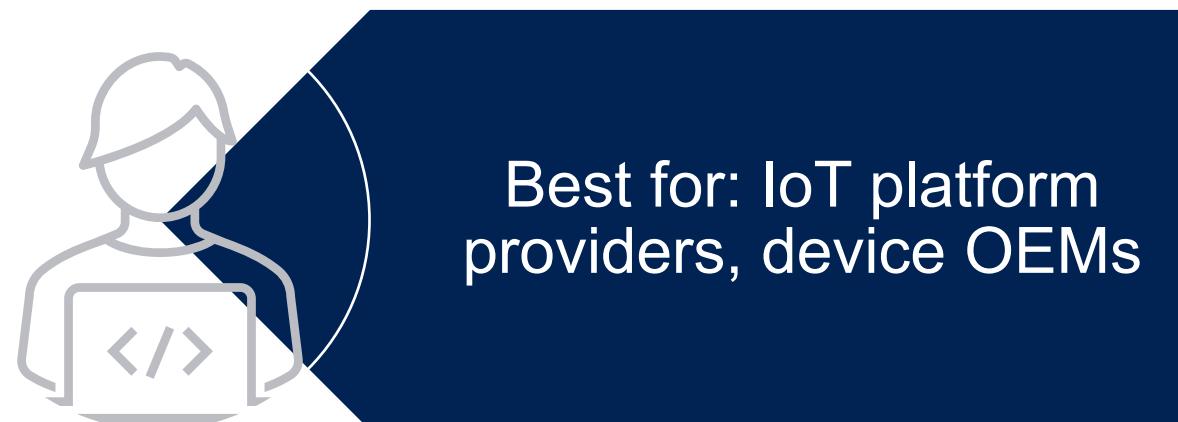


Best for: Payment  
integrators, OEMs, wallet  
providers

## SPECIALIZATION: IoT SECURITY



### Secure Element for IoT Training

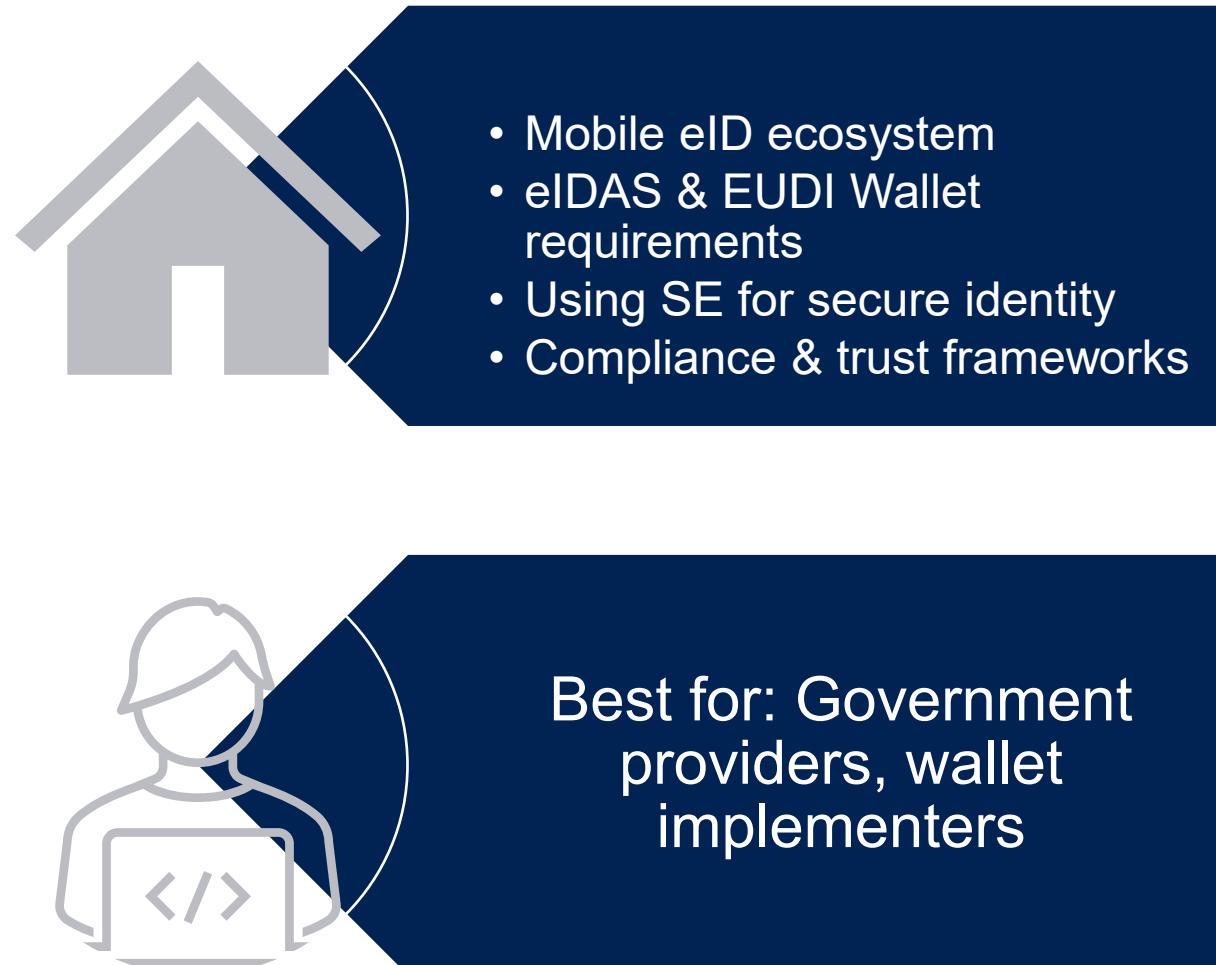


## SPECIALIZATION: DIGITAL IDENTITY, EUDI

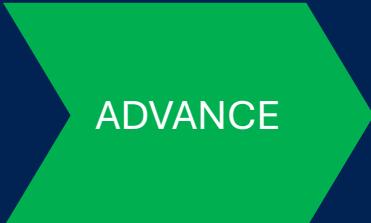
ADVANCE

### Secure Element for EUDI Training

- Mobile eID ecosystem
- eIDAS & EUDI Wallet requirements
- Using SE for secure identity
- Compliance & trust frameworks



**SPECIALIZATION:**  
**CSP,**  
**CRYPTOGRAPHIC**  
**FUNCTIONS IN SE,**  
**CERTIFICATIONS**



ADVANCE

## Secure Element CSP Training



- Cryptographic Service Provider (CSP)
- Secured Application on Mobile (SAM)
- eIDAS & EUDI Wallet requirements
- Using SE for secure identity
- Compliance & trust frameworks



Best for: Government providers, wallet implementers



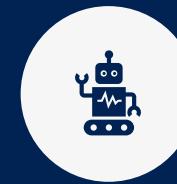
## Secure Element Trainings



- 1) Secure Element Core
- 2) SE for Developers (Java Card)



- 1) Mobile Identity
- 2) Payment / Mobile Contactless
- 3) SE for IoT



- 1) SE for EUDI
- 2) SE: CSP Training

# What is this training about?

## Secure Element for Developers (Java Card)

- 3-day training course by GlobalPlatform to build deep knowledge of Secure Element (SE) architecture, Java Card, and GP specifications.

### Why it matters:

Many industries — payments, identity, automotive, telecom, IoT — rely on SEs and smart-card technology to securely store data and run sensitive applications.

# What the course covers?

## Secure Element for Developers (Java Card)

### Fundamentals:

- SE architecture
- Java Card runtime & APIs
- Smart-card basics

### Advanced topics:

- cryptography,
- secure coding,
- applet lifecycle management,
- SE content management,
- secure channels,
- certification requirements

# What to gain?

## Secure Element for Developers (Java Card)

Understand Java Card technology and how it interacts with SE / GlobalPlatform specifications.

Grasp SE architecture, security domains, secure-channel mechanisms, and content management models.

Develop, deploy, test and debug secure Java Card applets using real tools (simulator, SDK, IDE).

Apply secure-by-design principles: cryptographic API usage, secure coding practices, resistance to physical and logical attacks.

Understand certification and evaluation requirements (e.g. security evaluation, compliance) for SE-based products.

# What you need?

## Development Kit installed



Your machine (Windows Laptop)



Prepared  
Environment and  
Downloaded SDK

Java Card  
Development Kit  
Tools 25.1 (26-  
Oct-2025)



# Java Card Development Kit



Facilitate  
the Java Card application development  
path to final products



## Support Latest Version of Java Card Specification



- Demonstrate most advanced features
- Cover most optional specification features

## Facilitate Application Testing



- Integrate with users' tools
- Integrate with users' infrastructure

## A standalone Development Environment on PC/Laptop



- Windows and Linux
- No card / No card reader
- Tools and IDE Plugin for development

## Full Debugging Support



- Java Card Applet debugging with IDE
- Various tools to send commands

## Compatibility with Standards

- Communication protocols
- Deployment and management mechanisms



# Components

## Tools

The Java Card Development Kit Tools are used to convert and verify Java Card applications. The Tools can be used with products based on version 3.2 of the Java Card specifications, and can also be used with products based on versions, 3.0.5 and 3.1 of the Java Card Platform specifications.



## Simulator



The Java Card Development Kit Simulator offers a runtime reference to Java Card applications. It implements the version 3.2 of the Java Card specifications.

Available for Windows and Linux.

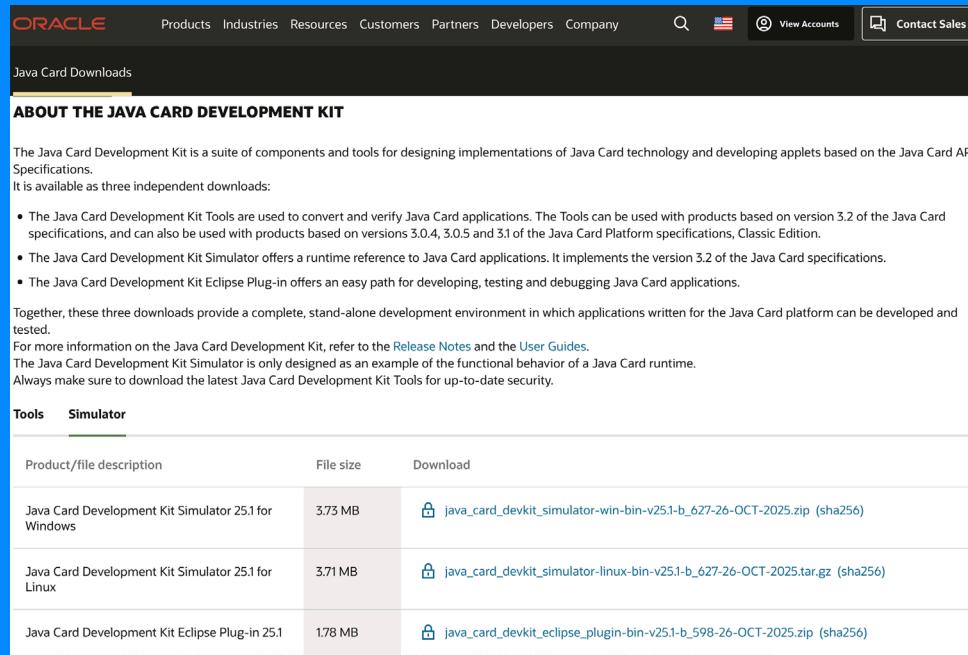
## Plugin for Eclipse IDE

The Java Card Development Kit Eclipse Plugin offers an easy path for developing, testing and debugging Java Card applications.



# Resources on Oracle website

## Download



The Java Card Development Kit is a suite of components and tools for designing implementations of Java Card technology and developing applets based on the Java Card API Specifications. It is available as three independent downloads:

- The Java Card Development Kit Tools are used to convert and verify Java Card applications. The Tools can be used with products based on version 3.2 of the Java Card specifications, and can also be used with products based on versions 3.0.4, 3.0.5 and 3.1 of the Java Card Platform specifications, Classic Edition.
- The Java Card Development Kit Simulator offers a runtime reference to Java Card applications. It implements the version 3.2 of the Java Card specifications.
- The Java Card Development Kit Eclipse Plug-in offers an easy path for developing, testing and debugging Java Card applications.

Together, these three downloads provide a complete, stand-alone development environment in which applications written for the Java Card platform can be developed and tested.

For more information on the Java Card Development Kit, refer to the [Release Notes](#) and the [User Guides](#). The Java Card Development Kit Simulator is only designed as an example of the functional behavior of a Java Card runtime. Always make sure to download the latest Java Card Development Kit Tools for up-to-date security.

Tools	Simulator	
Product/file description	File size	Download
Java Card Development Kit Simulator 25.1 for Windows	3.73 MB	<a href="#">java_card_devkit_simulator-win-bin-v25.1-b_627-26-OCT-2025.zip (sha256)</a>
Java Card Development Kit Simulator 25.1 for Linux	3.71 MB	<a href="#">java_card_devkit_simulator-linux-bin-v25.1-b_627-26-OCT-2025.tar.gz (sha256)</a>
Java Card Development Kit Eclipse Plug-in 25.1	1.78 MB	<a href="#">java_card_devkit_eclipse_plugin-bin-v25.1-b_598-26-OCT-2025.zip (sha256)</a>

<https://www.oracle.com/java/technologies/javacard-downloads.html> - sdk-sim

## Documentation



## Development Kit

**Simulator 25.1**  
[User Guide](#)  
[Release Notes](#)

**Tools v25.1**  
[User Guide](#)  
[Release Notes](#)

**Licensing Information User Manual v25.1**  
**LIUM**

[Download Development Kit](#)

<https://docs.oracle.com/en/java/javacard/3.2/>

# Next Training Java Card Developer

## When

- January 28–30, 2026
- 09:00 AM – 05:00 PM (CET) daily

## Where

- Paris, France
- *Early Bird Pricing: Until December 20, 2025*
- Registration
- <https://globalplatform.org/event/secure-element-for-developers-java-card-training/>

Special offer for Java Card forum members  
Use the Coupon code: JAVACARDFORUM



Register



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