



18th November to 16th December

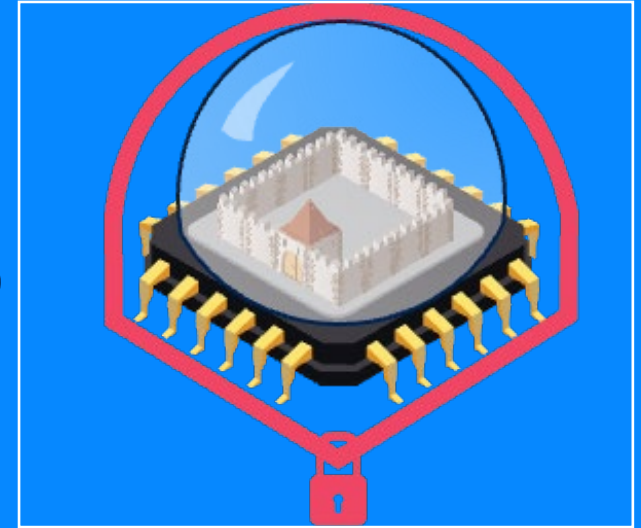
**2025
Webinar
Series**

Secure Elements for Developers

Gil Bernabeu, CTO, GlobalPlatform



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

- eSIM and secure vehicle connectivity
- Subscription Management
- Secure Remote Services
- eCall program in Europe
- Leading Automotive OEMs using Java Card for Secure Remote Services

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

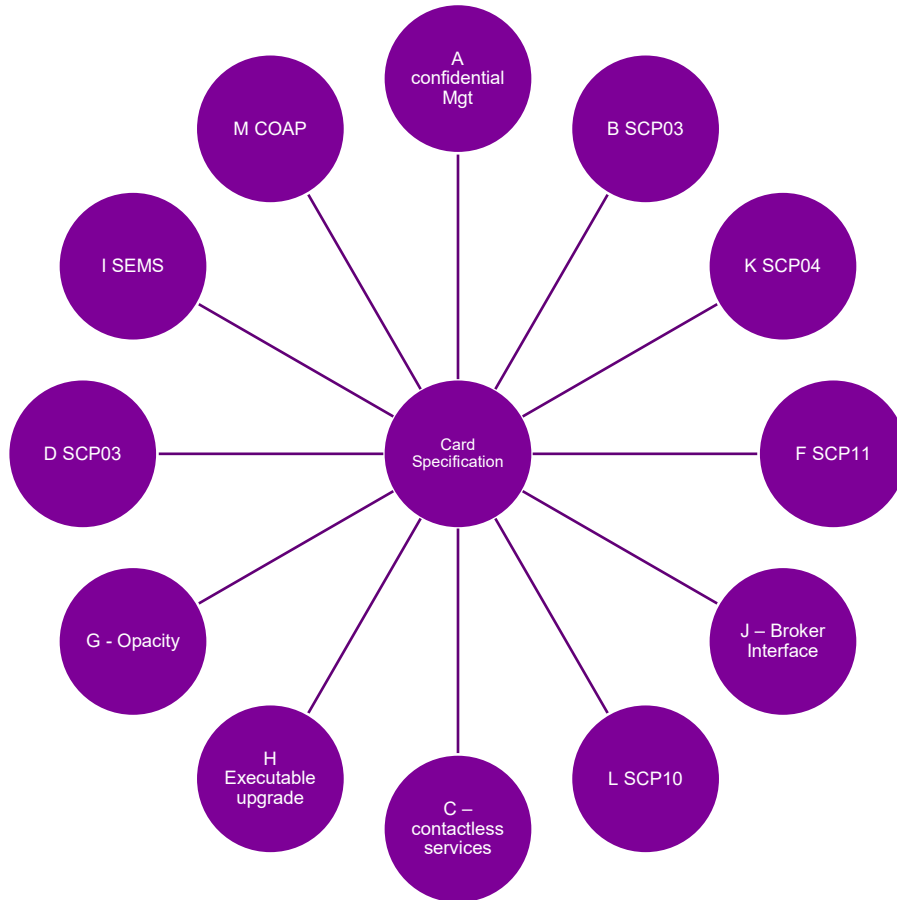
- Device Attestation / Integrity
- Device Credentials Protection
- Secure Peripheral Access
- Secure Cloud Service authentication
- Automated Device identity provisioning
- Secure PKI Certificate Storage

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)

Available at <https://globalplatform.org/specs-library/?filter-committee=se>

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



SAM

SAM (Secured Applications for Mobile)

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

SAM Configuration, v1.0 (March 2024)

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**

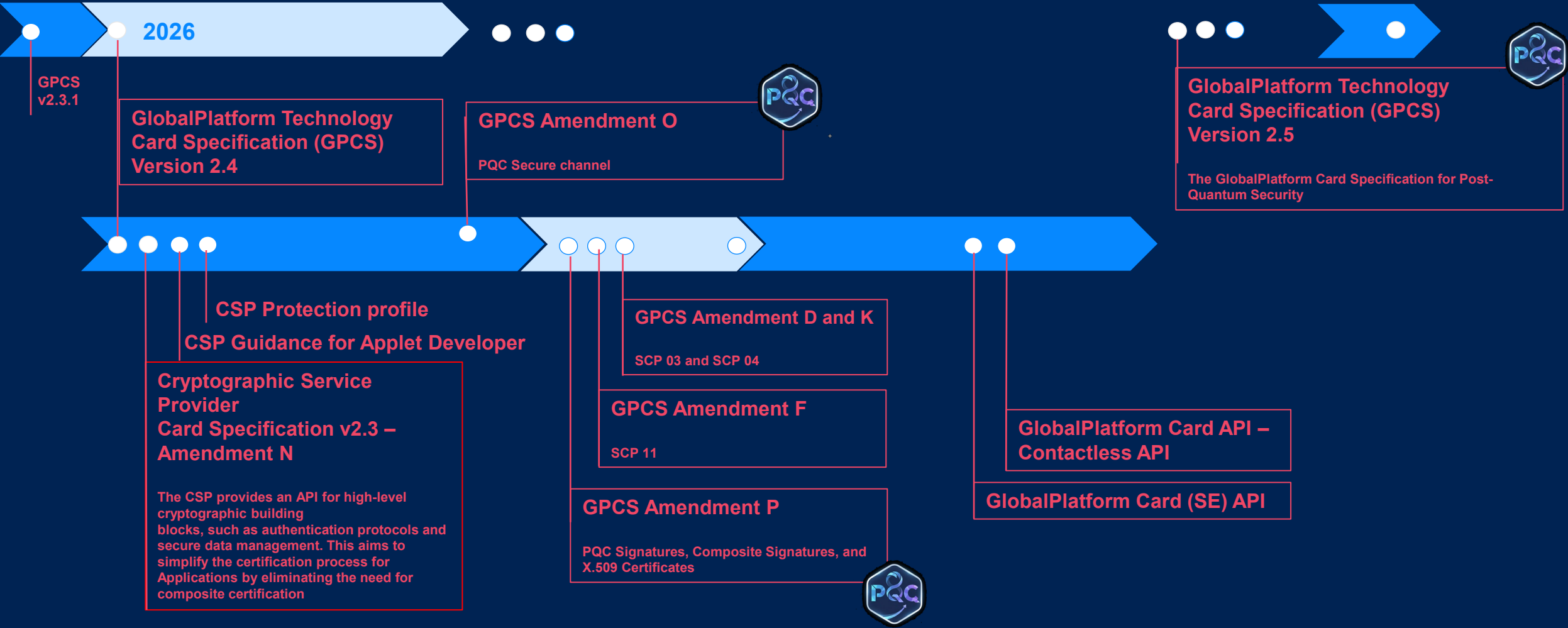
GP Card Specification – Amendment N (soon)

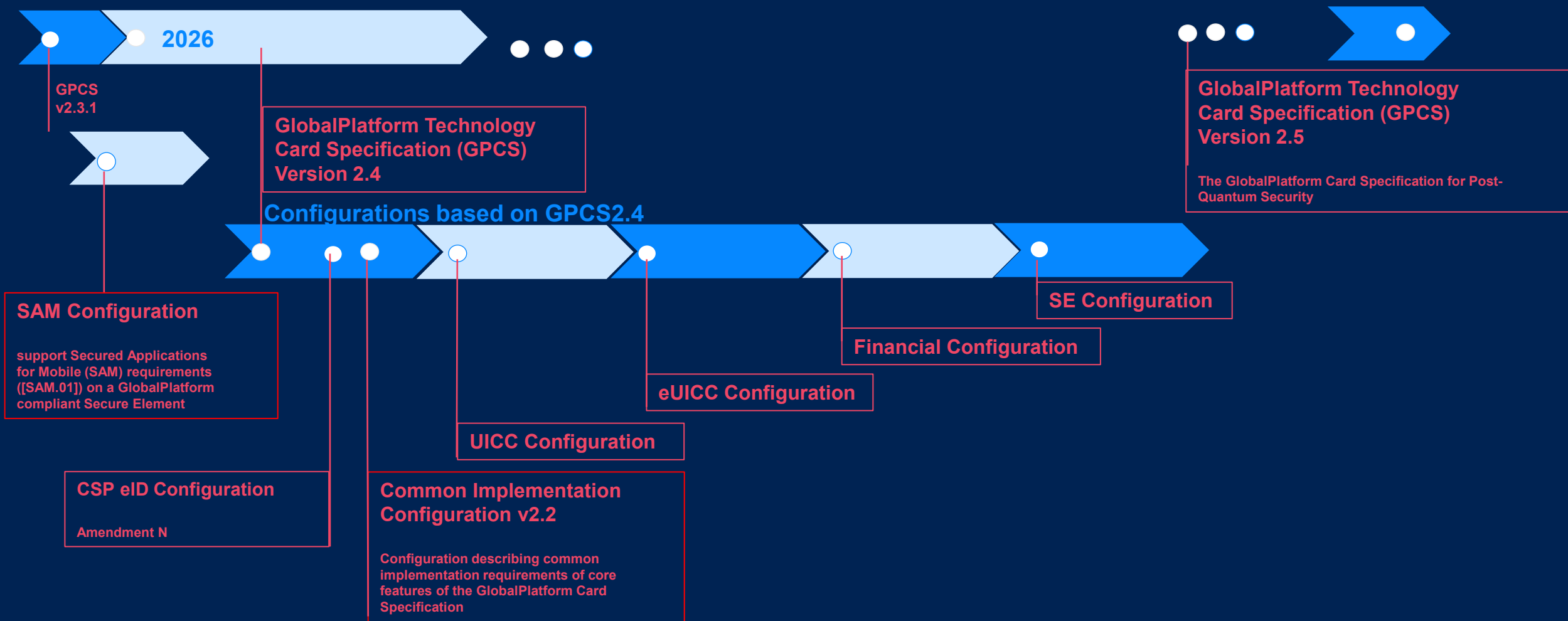
Two EUDI Wallet enablers

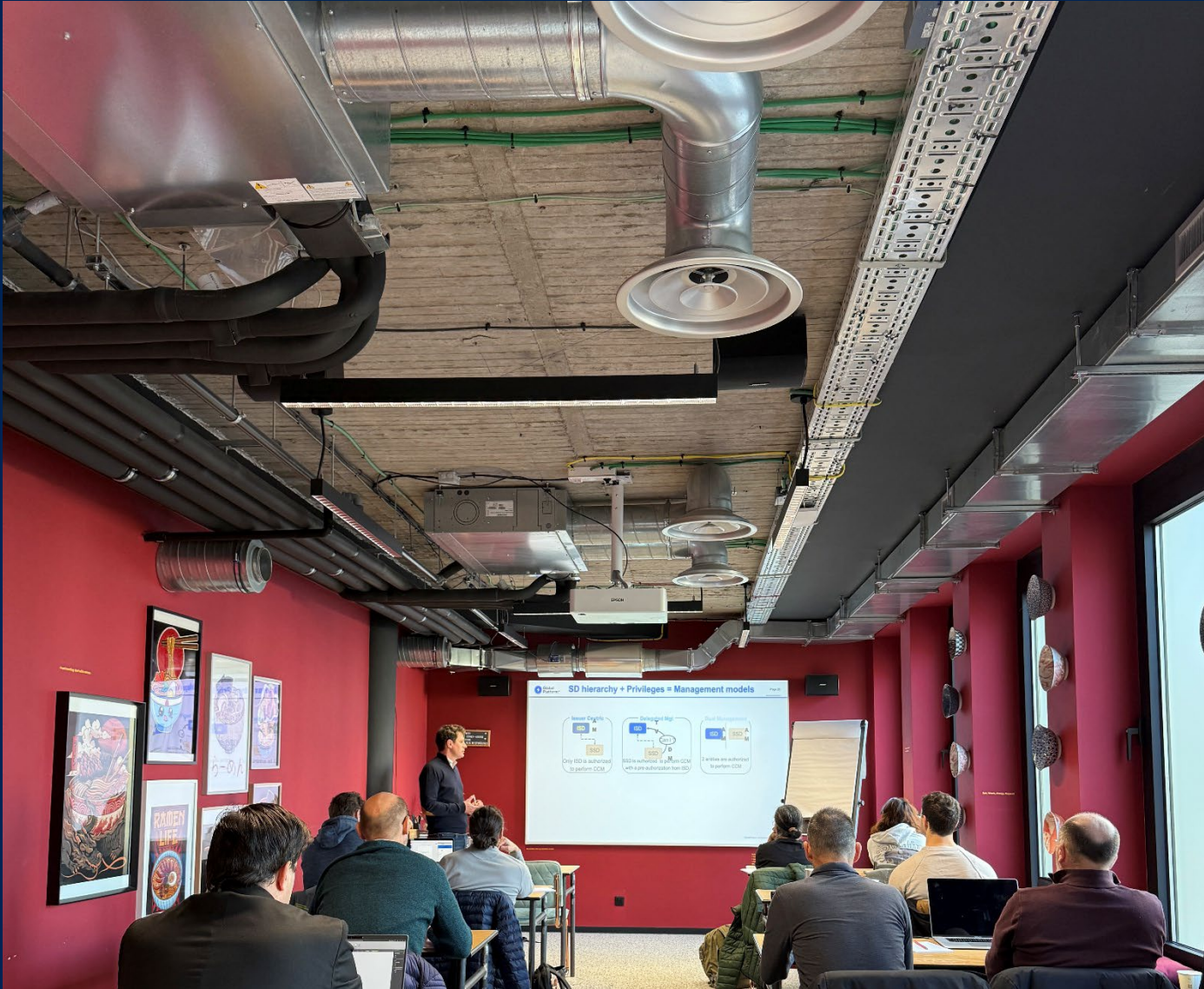
- Designed for future use with EUDI, but **equally relevant for broader digital wallet and identity ecosystems.**



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



Best for: Developers,
engineers, integrators

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

CORE

SPECIALIZED

Secure Element for IoT Training



- SE-based device identity
- IoT authentication models
- Provisioning & lifecycle
- Use cases: smart home, automotive, industrial



Best for: IoT platform providers, device OEMs

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



Best for: Government
providers, wallet
implementers

**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



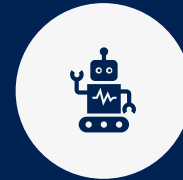
Secure Element Trainings



- 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

Global Platform® 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.

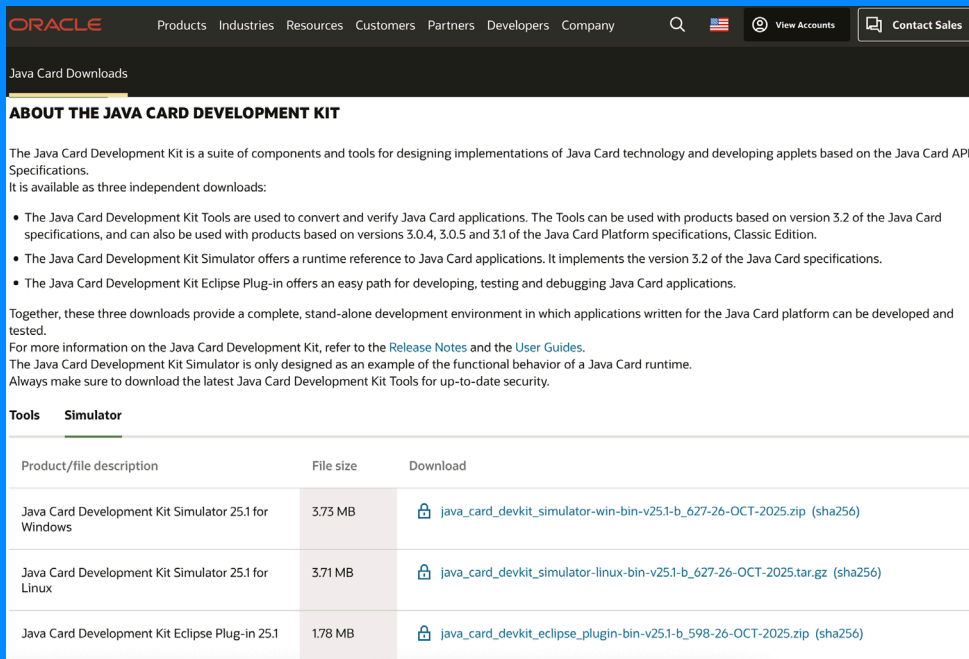
Plugin for Eclipse IDE





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



Resources on Oracle website

Download



ORACLE Products Industries Resources Customers Partners Developers Company    View Accounts  Contact Sales

Java Card Downloads




ABOUT THE JAVA CARD DEVELOPMENT KIT

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	 java_card_devkit_simulator-win-bin-v25.1-b_627-26-OCT-2025.zip (sha256)
Java Card Development Kit Simulator 25.1 for Linux	3.71 MB	 java_card_devkit_simulator-linux-bin-v25.1-b_627-26-OCT-2025.tar.gz (sha256)
Java Card Development Kit Eclipse Plug-in 25.1	1.78 MB	 java_card_devkit_eclipse_plugin-bin-v25.1-b_598-26-OCT-2025.zip (sha256)

<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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