



Inside a Java Card™ platform

Platform design track

Course objectives

The aim of this training session is to raise the awareness of platform developers and chip designers about the constraints linked to the implementation of a Java Card™ platform. It is a three-part training, which starts by an introduction to the Java language and concepts, followed by an overview of the various elements required by a Java Card platform, and by a more detailed presentation of the security issues faced by a Java Card platform.

Agenda

The training session is theoretical, but also includes many practical exercises during the sessions.

Day 1: Inside a Java Card platform

The first day is dedicated to the presentation of the principles of the platform.

- Introduction to the Java™ Language and Platform
- Introduction to virtual machines
- Java objects: theory and implementation
- Code representation and management
- Object representation and management
- Java Card code representation
- The CAP file format
- Linking a CAP file
- Java Card run-time data structure
- The Java Card stack
- The Java Card Heap

Day 2: Java Card platform security

The second day is dedicated to the study of Java Card platform security.

- Byte code security
- Static vs. dynamic verification
- Redundancy in the execution
- Data security
- Securing object accesses
- Firewall and other memory issues

Depending on the amount of time dedicated to the introduction to Java, some topics may shift to the second day, reducing the amount of time spent on the advanced security topics.

For chip designers who do not focus on security aspects as a primary interest, we propose to reduce the platform security session and focus half a day on specific requirements.

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