

Security Certification-aware Development Environment

Opportunity for a 6 months internship

**at SAP Research-SAP Labs France
Nice-Sophia Antipolis**

The SAP Research Security & Trust Practice is part of the global technology research unit of SAP and is addressing the major security and trust challenges in the context of highly dynamic service-oriented architecture such as automated management of security certification for software service, Business-driven approaches to the specification and enforcement of security and dependability requirements, Trust and data protection infrastructure for managing & assessing the risks associated with identity authentication and the trustworthiness of actors and Technology for the formal specification and automated validation of Trust and Security of service-oriented architectures.

The S&T Practice proposes a 6-month internship in its Sophia-Antipolis offices (Nice, France).

INTERNSHIP TOPIC

Background. The internship will take place in the context of Assert4SOA, a research project on security certification of software (www.assert4soa.eu). While the concept of security certification has been successfully adopted in the context of traditional software systems, the velocity and the intrinsic nature of new software provisioning models, such as those based on services and cloud architectures, make today's certification schemes inadequate and hinder their wide adoption.

In order to overcome these problems, the Assert4SOA project has already proposed and delivered a number of results, including A) a conceptual model and a machine-processable language to express security certificates, and B) a comprehensive discovery and matchmaking framework providing the machinery to process and reason about such digital security certificates.

Internship activity. The successful candidate will work on designing and implementing a tool realized as a set of plugins for an Eclipse-based development environment. The tool will integrate with the existing Assert4SOA framework and will offer developers the functionality to browse a catalog of software services and components based on their security properties. Using the tool, the developers will express their security needs and compliance requirements; the tool will match these requirements and the security properties offered by the components and services available in the catalog. Where a perfect match is not available, the tool will guide the user in finding alternative solutions offering a partial match. Finally, the tool will support the user in analyzing the compatibility of service assemblies based on the mutually required/guaranteed security properties.

We expect that about 30% of time will be dedicated to research activities, and 70% to design and development.

CANDIDATE PROFILE

Required skills

- University Level: Last year of MSc in Computer Science or beyond
- Hands-on development experience in Java
- Software design (UML, design patterns)
- XML and XML Schema (understand and extend existing schemas)
- Fluency in English (working language)
- Good oral and written communication skills
- Willingness and ability to work in an international environment
- Problem-solving skills, ability to work autonomously while coordinating with a larger team
- Not required, but highly appreciated:
 - development of Eclipse plugins, OSGi, GIT/SVN, Maven, Ant, scripting languages



INTERNSHIP CONTEXT

SAP & SAP Research

As the world's leading provider of business software, SAP delivers products and services that help accelerate business innovation for our customers. We believe that doing so will unleash growth and create significant new value – for our customers, SAP, and ultimately, entire industries and the economy at large. Today, more than 47,800 customers in more than 120 countries run SAP applications – from distinct solutions addressing the needs of small businesses and midsize companies to suite offerings for global organizations.

SAP Research

As the global technology research unit of SAP, SAP Research significantly contributes to SAP's product portfolio and extends SAP's leadership position by identifying and shaping emerging IT trends through applied research and corporate venturing.

SAP researchers explore opportunities that haven't yet been developed into products. They track technology trends, evaluate the potential impact on SAP solutions and customers, and create breakthrough technologies. Working with leading universities, partners, customers, and SAP product groups, SAP Research oversees the development of promising ideas and prototypes into market-ready software for maximum customer value.

SAP Research in Sophia Antipolis

SAP Research Center Sophia Antipolis is located in one of the most important scientific parks in France, and worldwide. A high concentration of IT and telecommunication industries within walking distance, proximity to research centres (INRIA, CNRS, etc.), as well universities and engineering schools (Polytech Nice, Eurecom, etc.) provide an ideal working environment. Based at SAP Labs France, SAP Research Center Sophia Antipolis focuses on the topics of Business Intelligence and Security & Trust.

STANDARD INTERNSHIP PACKAGE

- *Salary*: depending on the length of the internship and your diploma.
- *Lunch*: SAP Labs France has a local cafeteria; interns contribute 2,23 Euro/lunch, like other SAP employees.
- *Holidays*: French Bank Holidays
 - January 1st; March 31st; May 1st; May 8th; May 9th; May 20th; July 14th; August 15th; Nov 1st and 11th; December 25th
- *Travel*: no trip will be paid by SAP.
- *Accommodation*: SAP can propose an accommodation for the duration of your internship. The accommodation is subsidised by SAP: the intern pays a reduced rate of 375€.

CONTACTS AND PROCEDURE

Please send in **English** your CV, a cover letter and any relevant documents to the following persons stating the title of the Internship in the subject: **[Internship Application] Security Certification-aware Development Environment**.

Supervisor

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