

Talha Bilal

Senior Software Engineer (Java Spring Boot & PKI)

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Professional Summary

Senior Software Engineer and Technical Team Lead with 4 years of experience architecting and delivering secure, enterprise-grade systems using Java Spring Boot and Public Key Infrastructure (PKI). Specialized in designing microservices architectures, developing cryptographic services, and integrating with HSM platforms (AWS CloudHSM, Utimaco, SoftHSM2). Skilled in Spring Security, AOP, RESTful APIs, and OpenAPI, with hands-on expertise in Bouncy Castle and IAIK libraries.

Experience

Technical Team Lead – Dictalabs (Aug 2024 – Present)

- Leading backend development with Java Spring Boot and PKI-focused microservices.
- Architecting secure cryptographic services and workflow management systems.
- Integrating with HSMs (AWS CloudHSM, Utimaco, SoftHSM2) for key management and signing operations.
- Managing a small team to deliver secure enterprise-grade applications.

Senior Software Engineer – Codegic (Aug 2021 – Jul 2024)

- Designed and implemented PKI-based systems including Certificate Authority (CA), OCSP, CRL management, and timestamp services.
- Developed secure email signing and verification services using Bouncy Castle and IAIK.
- Implemented microservices-based architectures and RESTful APIs with Spring Boot, Spring Security, and OpenAPI.
- Collaborated on Redis caching, RabbitMQ messaging, and PostgreSQL-based persistence layers.

Key Projects

- PKI Server – End-to-end CA with certificate issuance, revocation (OCSP/CRL), and validation workflows.
- Secure Email Signing Server – Built S/MIME signing and verification services integrated with third-party signing APIs.
- Workflow Management System – Secure document approval and digital PDF signing platform.
- Crypto-Core – Central cryptographic engine handling certificates, keys, and HSM integrations.
- Timestamp Server – RFC 3161 compliant TSA for enterprise-level timestamping.
- PKCS#11 Key Management Service – REST-based key lifecycle and signing operations via HSMs.

Technical Skills

Languages: Java

Frameworks: Spring Boot, Spring Security, AOP

Architecture: Microservices, RESTful APIs, OpenAPI

Security / PKI: Bouncy Castle, IAIK, PKCS#11, OCSP, CRL, S/MIME, X.509

HSM: AWS CloudHSM, Utimaco, SoftHSM2

Messaging / Caching: RabbitMQ, Redis

Tools: Git, Gradle, Maven, IntelliJ, Postman

Databases: PostgreSQL, MySQL

Education

BS in Computer Science, KFUEIT — 2021