

# Talha Bilal

Senior Software Engineer (Java Spring Boot & PKI)

■ talha.at43@gmail.com | ■ LinkedIn: <https://www.linkedin.com/in/talha-bilal-a74477154> | ■

[talhabilal.github.io](https://github.com/talhabilal)

## Professional Summary

Senior Software Engineer and Technical Team Lead with over 5 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.

## Core Skills & Technologies

Languages: Java, SQL

Frameworks: Spring Boot, Spring Security, Spring AOP, REST APIs, OpenAPI

PKI & Cryptography: Bouncy Castle, IAIK, PKCS#11, CloudHSM (AWS, Utimaco, SoftHSM2)

Messaging & Caching: RabbitMQ, Redis

DevOps & Tools: Docker, Jenkins, Git, Gradle

Databases: PostgreSQL, MySQL

Architecture: Microservices, Event-driven systems

## Professional Experience

**Dictalabs** — Technical Team Lead (Java Spring Boot & PKI) — Apr 2024 – Present

- Leading a team of engineers to design and implement secure, microservices-based PKI and cryptographic systems.
- Architected HSM-integrated services for key management, digital signatures, and timestamping.
- Oversaw integration of PKCS#11 services across multiple environments including AWS CloudHSM and SoftHSM2.
- Improved system performance, reliability, and scalability for enterprise-grade signing workflows.

**Codegic** — Senior Software Engineer (Java Spring Boot & PKI) — Nov 2020 – Mar 2024

- Designed and developed secure backend services and APIs for digital signing and certificate management.
- Implemented PKI infrastructure including Certificate Authority, CRL/OCSP responders, and workflow automation.
- Integrated Spring Boot microservices with cryptographic libraries (Bouncy Castle, IAIK) and HSM platforms.
- Collaborated on security audits, architecture design, and continuous integration pipelines using Jenkins and Docker.

## Key Projects

- **PKI Server:** End-to-end certificate authority and lifecycle management platform supporting OCSP, CRL, and HSM-based key storage.
- **Secure Email Signing Server:** S/MIME-based email signing and verification service integrated with enterprise mail systems.
- **Workflow Management System:** Secure PDF signing and multi-step approval system using digital

certificates and timestamps.

- Timestamp Server: RFC 3161-compliant service for verifiable digital signatures.
- PKCS#11 Service: Unified key management abstraction for CloudHSM, SoftHSM2, and Utimaco devices.

## **Education**

BS in Computer Science — Khwaja Fareed University of Engineering & Information Technology (KFUEIT), 2021

## **Certifications & Interests**

- Cryptography & PKI System Design
- Secure Software Architecture
- Cloud Security (AWS CloudHSM)