



# AN for Software Solutions & Training

Bringing a Real Value to our customers

## Tablio SaaS Case Study

Zero-Runtime-DDL Multi-Tenant No-Code SaaS



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**Live Production:** [www.tablio.live](http://www.tablio.live)

**Tech Stack:** NestJS · TypeScript · PostgreSQL (RLS) · Authentication · CI/CD

## 1. Overview

Tablio is a complex SaaS platform designed to allow non-technical business owners to build their own database-backed systems (tables, fields, permissions) via a guided UI. This project serves as a masterclass in extreme data privacy, tenant isolation, and secure application architecture.

## 2. The Architectural Challenge & Solution

Building a platform where users define their own data structures traditionally leads to messy, unscalable databases or insecure data boundaries. The solution is a pooled multi-tenant architecture inside a single PostgreSQL database that enforces isolation entirely at the database layer without relying on runtime DDL.

## 3. Key Engineering Highlights

- **Ironclad Row-Level Security (RLS):** True tenant isolation is enforced strictly via PostgreSQL RLS. Application roles (tablio\_app and tablio\_platform) are completely restricted from bypassing RLS (configured as NOSUPERUSER, NOBYPASSRLS)—guaranteeing that tenant data is isolated by default.
- **Cross-Tenant Isolation Testing:** The isolation model is continuously verified by a standing cross-tenant isolation test suite that runs directly against the live database pool to mathematically prove data cannot leak.
- **Obsessive Test Coverage:** The backend logic is protected by ~270 automated tests, ensuring a safe-by-default design throughout the complex, multi-tiered permission model (table, field, and row levels).
- **Bulletproof Authentication:** Engineered a two-plane authentication system utilizing argon2id password hashing, rotating refresh tokens with reuse-detection (family revoke), and enumeration-safe rate limiting to cleanly separate tenant users from platform admins.