



CitizenApp

Citizen Registry System

Full-Stack Production Deploy · Cloud-Native · ID Encrypted

Uğur Aslım · May 2026

v2.4.0 · LIVE

Technology Stack

01 / 09

Modern, cloud-native, production-ready architecture



FRONTEND

React 19

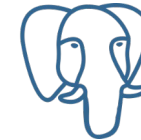
TypeScript 6 · Vite 8 · Tailwind



BACKEND

FastAPI

Python 3.14 · SQLAlchemy



DATABASE

PostgreSQL 16

Neon · Frankfurt · Pooled



CACHE

Valkey/Redis

Token blacklist · Sessions



CONTAINER

Docker

Multi-stage · Non-root



HOSTING

**Render +
Vercel**

Auto-deploy · Edge CDN

All European infrastructure · Low latency · Free tier start

What Was Built?

Feature list & production validation



Citizen CRUD

Fully functional record management



Search & Filtering

ID, full name, pagination



Export: CSV / XLSX / PDF

Masked & plain · Column selection (?cols=...)



Audit Log

30+ event types · IP logging · filtered · CSV export



2FA / TOTP

QR + Authenticator + recovery codes

107

Backend tests (pytest)

5/5

Production smoke tests passed

30+

Audit log event types

100%

RBAC (3 roles) + GDPR-equivalent compliant

Security & Compliance

03 / 09

Production-grade defense layers



ID Encryption

Fernet symmetric encryption, no plaintext in DB



JWT + Refresh Token

Access 15min, refresh 30 days, rotation pattern



2FA (TOTP)

Authenticator + recovery codes + sliding session



Audit Log

Login/logout/2FA — IP address + all sensitive operations tracked



CORS Hardening

Single domain whitelist · AUTH_REGISTER_OPEN=false



RBAC (3 Roles)

admin · operator · viewer · require_role() factory

Production Access

04 / 09

Connection links & demo credentials



FRONTEND (Vercel)

<https://vatandas-react.vercel.app>

React + Vite · Edge CDN · Auto HTTPS



BACKEND API (Render)

<https://vatandas-backend.onrender.com>

FastAPI · Docker · /docs Swagger UI



SOURCE CODE (GitHub)

github.com/uaslim-create/vatandas_react

Main branch · Auto-deploy · 107 test green



DEMO LOGIN

USERNAME

demo_admin

PASSWORD

DemoP@ss2026!

2FA ACTIVE

Authenticator app required (TOTP)

⚠ *Render free tier:
first request ~50s*

Python Backend Architecture

05 / 09

Python 3.14 · FastAPI · SQLAlchemy · 107 pytest test green



PYTHON

3.14

107

Backend Tests

32+

API Endpoint

10

DB Migration

~85%

Coverage



FastAPI

Async REST API · OpenAPI · Pydantic v2



SQLAlchemy 2.0

ORM · Type-safe · Alembic migrations



pytest

107 test · Fixtures · Coverage reports



Auth Stack

python-jose · passlib · bcrypt · pyotp



Infrastructure

Pydantic Settings · Redis · structlog

All backend Python — uvicorn workers · Docker multi-stage · non-root user

Cloud Management Panels

06 / 09

Database, backend, frontend management interfaces



DATABASE

Neon Postgres

console.neon.tech

SQL editor · Branching · Backup · Connection pooler · Monitoring

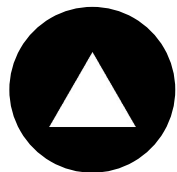


BACKEND HOSTING

Render Dashboard

dashboard.render.com

Logs · Env vars · Redis · Deploy history · Shell access



FRONTEND HOSTING

Vercel Dashboard

vercel.com/dashboard

Deployments · Analytics · Custom domain · Edge logs



API DOCUMENTATION

Swagger UI

vatandas-backend.onrender.com/docs

Auto-generated · Live test · All endpoints · OpenAPI 3.0

Access: Login with GitHub SSO · All panels accessible with a single account

Deploy Journey

Production deploy süreci — engineering decisions & lessons

VENDOR PIVOT: UPSTASH → RENDER REDIS

1

Before: Upstash Free Tier

Global Redis, quick setup, familiar solution

TRIED

2

Issue #1: Python 3.14 SSL

VERIFY_X509_STRICT regression → TLS cert reject

FIX ATTEMPT 1

3

Issue #2: Connection Drops

Render → Upstash Global tier connection instability

FIX ATTEMPT 2-5

4

Solution: Render Internal Redis

Valkey 8 · Frankfurt · fromService env wiring

PRODUCTION
READY

ENGINEERING LESSONS



Vendor Pivot Awareness

Switch to alternative instead of endless debugging



TLS/SSL Awareness

Know Python version regressions



Provider Symmetry

Keep backend and cache in the same region



Production Patterns

Keepalive · health_check · timeouts



OpenAPI Introspection

/openapi.json for schema discovery

~5 hours debugging · 5+ fix attempts · 1 pragmatic pivot · 0 prod downtime

v2.4.0 — Latest Improvements

08 / 09

May 2026 · AI-augmented workflow · Portfolio site launched · 107 tests green

User Profile Management

First/Last name fields (migration 0009) · Self-service profile editing

Name display in navbar · /settings/profile page

Admin User Management

Inline name editing · Password reset button

Added date · Added by column (migration 0010)

Self-service Password Change

Current password verification · /settings/password page

Refresh token revocation · POST /auth/change-password

React 19 + Vite 8 Migration

@vitejs/plugin-react v6 · TypeScript 6 · named imports

Claude · Cursor · GitHub Copilot · AI-augmented throughout

Thank You

Thank you for your time

CONTACT

Uğur ASLIM



PHONE

+90 533 375 15 49



GITHUB

github.com/uaslim-create



EMAIL

uaslim@me.com

uguraslim.com · linkedin.com/in/uguraslim