

# pgzx - Postgres extensions in Zig

Gülçin Yıldırım Jelinek, Staff Engineer @ Xata

Oct 2024, Extensions Ecosystem Summit



# Xata

## Postgres for teams that ship fast

Shorten dev cycles with a collaborative developer experience.

**Zero-downtime database branching with reversible schema migrations help the whole team deploy with confidence.**



[README](#)[Apache-2.0 license](#)License [Apache 2.0](#)[Check](#) [passing](#)[Discord](#) [114 online](#)[follow @xata](#)

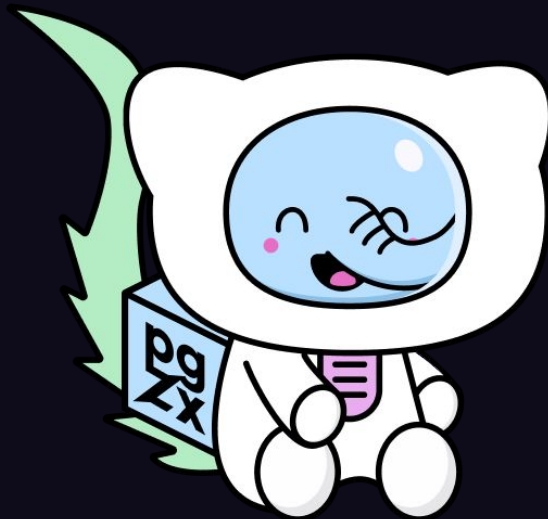
## pgzx - Create Postgres Extensions with Zig!

`pgzx` is a library for developing PostgreSQL extensions written in Zig. It provides a set of utilities (e.g. error handling, memory allocators, wrappers) as well as a development environment that simplify integrating with the Postgres code base.

# xataio/pgzx

Library for developing PostgreSQL extensions written in Zig

- ✓ Access to all Postgres APIs available
- ✓ Zig memory allocators for memory safety and protection against leaks
- ✓ Postgres error wrapper for logging & error handling
- ✓ Development environment with regression & unit testing build in



# The Zig programming language

---

- Excellent interoperability with C
  - Call C functions directly
  - Use C types directly
  - Translate macros automatically
  - Explicit allocators
- Also:
  - comptime
  - Modern std library
  - Good error handling
  - Safer memory management





## Rust / pgrx

---

Strong memory safety

Stable language

Selective Postgres APIs

Further from C

## Zig / pgzx

---

Weak memory safety

Pre 1.0 language

Direct access to any Postgres API

Closer to C



## pgzx wrappers and utilities

---

### Data structures

Lists

Hashtables

### Utilities

Error handling

Logging

String formatting

### Subsystems

Memory contexts

Functions manager

SPI

Background workers

Shared memory access

### Development Environment

Nix based environment

Build / test cycle for extensions

Pg\_regress support

Unit test support

# Thanks!

---

pgzx:

<https://github.com/xataio/pgzx>



Xata:

<https://xata.io>

<https://github.com/xataio>

@xata

