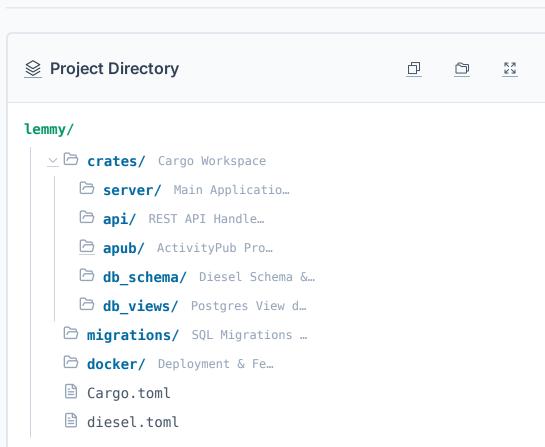
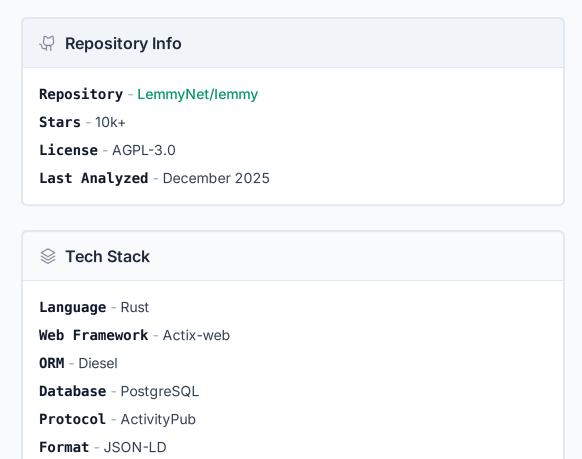


A link aggregator and forum for the decentralized web. A high-performance Rust application built with Actix-web and Diesel, focusing on ActivityPub federation.

Updated 2025-12-30

#lemmy #rust #actix-web #diesel #activitypub #federation #reddit-alternative





Architecture Notes

Lemmy is built as a modular **Cargo Workspace**. It relies heavily on **Diesel** for a type-safe interface to PostgreSQL. A distinct feature of Lemmy's architecture is its heavy use of **PostgreSQL Views**

(db_views) to handle complex aggregations (like calculating hot-ranking scores or unread counts) efficiently at the database level. Federation is handled by the apub crate, which implements the ActivityPub standard.

crates/apub/ - The federation engine. Handles sending and receiving activities (Like, Post, Follow) between Lemmy instances.

crates/db_views/ - Contains definitions for materialized and non-materialized views that simplify complex queries for the API.

crates/api/ - The Actix-web server implementation. It defines the JSON-RPC-like REST API that the frontend (lemmy-ui) consumes.

Why This Structure?

Lemmy is a prime example of a 'Social Systems' architecture in Rust. It shows how to combine high-performance web frameworks with a robust, type-safe database layer to build a decentralized platform.