Hacking PostgreSQL with Eclipse

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Motivation

Postgres can't do everything

You can extend it

Eclipse makes it easy

Extensions

postGIS - Spatial and Geographic objects

pg_cron - Run periodic jobs

hll - HyperLogLog (approximate distinct count)

citus - Scale across multiple machines

Personal Story

Distributed PostgreSQL

PostgreSQL Extension

What is Citus?

- **Open-source** PostgreSQL extension (not a fork)
- **Scalable** across multiple machines through sharding and replication
- **Distributed** engine for query parallelization
- **Database** designed to scale multi-tenant applications

Why Eclipse?

Start Fast

Easy Navigation

Rich Features

Demo Outline

PostgreSQL Inside Eclipse

Walking Around

Deep Dive

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Build PostgreSQL

./configure **CFLAGS=-"O0 -g"**

make -s -j4

sudo make install

Import PostgreSQL into Eclipse

File -> Import

C/C++ -> Existing Code as Makefile Project

Turn off scalability mode (optional)

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Attach GDB

select pg_backend_pid();

Debug As -> Debug Configurations

C/C++ Attach to Application

PostgreSQL Data Structures

Variables window

p pprint(parse)

printf "%s", pretty_format_node_dump(nodeToString(parse))
Preferences -> C/C++ -> Debug -> GDB -> Check "Show the GDB traces..."

Errors

errstart() in elog.c

if (elevel >= ERROR)

Crashes

pg_crasher

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Gatekeeper

watch

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Summary

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