

📄 PROTOCOL GUIDE

EMS Protocol Search & RAG System Architecture

49,201

PROTOCOL
CHUNKS

2,713

EMS
AGENCIES

51

STATES
COVERED

1,536

EMBEDDING
DIMS

📄 QUERY FLOW

📄 User Query
"814 policy"



📄 Voyage AI
Generate Embedding



📄 pgvector
Semantic Search



📄 Claude
RAG Response



📄 Answer
With Protocol Refs

📄 FRONTEND

React Native / Expo

Cross-platform
mobile app
iOS + Android +
Web

Features

- Voice input (transcription)
- Offline cache

⚙️ BACKEND

Node.js + tRPC

Type-safe API layer
`server/routers.ts`

Endpoints

- `search.semantic`
- `query.submit`
- `user.selectCounty`
- `voice.transcribe`

📄 DATABASES

TiDB Cloud (MySQL)

Primary data store

- protocolChunks
- counties
- users, queries, feedback

Supabase (PostgreSQL)

Vector search + Auth

- manus_protocol_chunks
- pgvector extension

- (50 protocols)
- County selection
 - Query history

Auth

Google OAuth +
Apple Sign-In
via Supabase Auth

React Query

AsyncStorage

Expo Router

Tiered LLM Routing

Free → Claude Haiku
Pro → Claude Sonnet

Express

Drizzle ORM

Stripe

• `search_manus_protocols()`

pgvector

1536-dim vectors

AI SERVICES

Voyage AI

Medical-optimized
embeddings

Model: `voyage-large-2`
1536 dimensions

Claude (Anthropic)

RAG response generation

- Haiku (fast, free tier)
- Sonnet (quality, pro tier)

Strict retrieval-only
prompting

EXTERNAL

Data Sources

- LA County DHS PDFs
- State LEMSA protocols
- NAEMSP guidelines
- County-specific manuals

Payments

Stripe integration

- Pro Monthly
- Pro Annual

Webhook subscription sync

LA COUNTY PROTOCOLS (ID: 240009)

Ref 814 —
Determination of
Death

Ref 817 — HERT
Team

TP 1210 —
Cardiac Arrest

TP 1242 — Crush Injury

TP 1335 — Needle Decompression

TP 1200.3 — Provider Impressions

● Frontend ● Backend ● Database ● AI Services ● External

✂ Hybrid Search: Keyword matching (protocol #) + Semantic search (pgvector) →
Merged results → Claude RAG