

System Architecture

Purpose

- Describe the MEAI system layout, including RAG core, web UI, and prompts. (docs/MEAI_CONTEXT.md)

System Overview

- The system is a Python-based RAG application using Supabase as a vector store. (docs/MEAI_CONTEXT.md)
- The core engine lives in `meai_core/engine.py` and the web backend in `meai_web/server.py`. (README.md)

Components

- Core RAG logic, vendor retrieval, and prompt assembly are implemented in `meai_core/engine.py`. (`meai_core/engine.py`)
- The FastAPI server defines web endpoints and serves templates/static assets. (`meai_web/server.py`)
- Frontend chat behavior and client-side routing are in `meai_web/static/app.js`. (`meai_web/static/app.js`)
- System prompts live in `prompts/` and are treated as stable interfaces. (docs/MEAI_CONTEXT.md)

Data Flow

- Requests are routed through `rag_answer`, which runs planning, retrieval, and LLM completion. (`meai_core/engine.py`)
- Retrieval uses Supabase RPC `match_meai_chunks` to fetch candidate chunks. (`meai_core/engine.py`)
- Retrieved chunks are filtered, assembled into a context block, and combined with license and vendor blocks. (`meai_core/engine.py`)
- The UI sends chat requests to `/api/ask` and math shortcuts to `/api/math`. (`meai_web/static/app.js`)

Interfaces

- HTTP: POST /api/ask, POST /api/feedback, POST /api/math, and GET /api/notes/download. (meai_web/server.py)
- Prompt interfaces: prompts/mode_1.txt, prompts/mode_2.txt, prompts/planner.txt, prompts/validator.txt. (docs/MEAI_CONTEXT.md) (prompts/mode_1.txt) (prompts/mode_2.txt) (prompts/planner.txt) (prompts/validator.txt)

Non-Goals

- No autonomous agents yet. (docs/MEAI_CONTEXT.md)
- No live Google Drive sync. (docs/MEAI_CONTEXT.md)
- No hallucinated citations or overconfidence. (docs/MEAI_CONTEXT.md)

Last Verified

- Timestamp: 2026-01-03 16:35:09 EST
- Git branch: main
- Files referenced: docs/MEAI_CONTEXT.md, README.md, meai_core/engine.py, meai_web/server.py, meai_web/static/app.js, prompts/mode_1.txt, prompts/mode_2.txt, prompts/planner.txt, prompts/validator.txt