System Architecture and Technical Specification - Auralite Data Hub

System Overview

Auralite Data Hub processes high-throughput IoT and analytics data in real-time.

Architecture

Kafka (ingest), Spark (processing), PostgreSQL (metadata), AWS S3 (storage), Streamlit & Grafana (visualization).

Hardware Requirements

Min: 8-core CPU, 32GB RAM, 1TB SSD. Recommended: 16-core CPU, 64GB RAM, 2TB SSD.

API Specifications

REST endpoints for ingest, auth, analytics, and monitoring with JSON responses.

Deployment Guide

Deployed via Docker & Kubernetes with CI/CD pipelines using GitHub Actions.

Maintenance & Versioning

Quarterly updates, semantic versioning, automated rollback and backup strategy.