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# Zabbix Telemetry & Monitoring Guide

## Overview

The Local Food AI project enforces strict DevSecOps observability by streaming live hardware and database telemetry metrics to an external Zabbix server (**192.168.130.170:8081**).

**[!IMPORTANT] Offline Local Fallback:** If the network to the external server is down or unavailable, the Zabbix monitoring dashboard is fully functional and accessible locally at `http://localhost:8081` when running the local Docker Compose stack.

## Accessing the Dashboard

- Open your browser and navigate to `http://192.168.130.170:8081` (or `http://localhost:8081` if offline/local).
- Log in using your Zabbix credentials (default: **Admin / zabbix**).
- On the left sidebar, click **Monitoring > Dashboards**.
- Select the **Food AI RAG Telemetry (Live)** dashboard.

## Key Metrics Monitored

The dashboard automatically queries the SNMP daemons running inside the Docker containers to monitor:

- **Memory Consumption:** Evaluates the massive RAM usage required by the Ollama Llama3.2:3B LLM during clinical evaluations.
- **CPU Spikes:** Identifies processing bottlenecks during the 3GB OpenFoodFacts **MATCH AGAINST** queries.
- **Database Row Count Check:** Displays the real-time record count of `food_db.products_core` to monitor the background CSV ingestion progress.

## Verifying Alerts

- Click **Monitoring > Problems**.
- If `snmpd` inside a container crashes or is unreachable, Zabbix will trigger an **Agent Unreachable** High-Severity Alert.
- If the Database Server container crashes, Zabbix will trigger an alert via the Application Python `snmp_notifier.py` wrapper which sends asynchronous trap payloads indicating critical RAG failures.