

Strange Mythic Lab — CamUtil Full Chronicle (Today)

This document is a consolidated, single-source reference capturing all design decisions, architecture, features, philosophy, and implementation details discussed today regarding CamUtil and its role as the central reporting, evidence, and correlation engine for the Strange Mythic Lab.

1. Purpose of CamUtil

CamUtil is the central local-first observatory and evidence intake system for the lab. All sensors, scans, and auxiliary nodes report into it. It is designed for forensic clarity, deterministic behavior, and offline operation.

2. Core Philosophy

- Local-first, no cloud dependencies
- Deterministic, reproducible behavior
- Evidence over assumption
- Identifiers are claims, not truth
- Correlation over time defines identity

3. Network Scanning Capabilities

ARP, port scanning, HTTP fingerprinting, ONVIF discovery, RTSP probing, and confidence scoring. Safe Mode gates active probes. All known data auto-populates into actions without copy/paste.

4. BLE System Overview

Passive BLE scanning, fingerprinting, RSSI smoothing, Find mode, radar visualization, and decoded manufacturer/service data using local tables. BLE treated as untrusted signals.

5. BLE Metadata & Assigned Numbers

BLE Company IDs and Assigned Numbers are loaded from bundled resources. 16-bit and 32-bit UUIDs are normalized to full 128-bit form for readability while raw values are preserved.

6. Pi-Aux Integration

Local HTTP ingestion endpoint with token authentication. Pi-Aux acts as an untrusted sensor node sending events to CamUtil for correlation and logging.

7. Action Panel & UI Model

Unified selection by IP or BLE fingerprint. Always-on Action Panel auto-fills known targets. Buttons perform actions directly without manual data transfer.

8. RTSP & Hard Probe System

Standard RTSP probe plus Hard Probe path that attempts multiple VLC strategies, logs diagnostics, and always emits a report even when blocked or failing.

9. Reports & Exports

Every export produces paired RAW and READABLE artifacts. Readable reports include summaries, confidence reasoning, decoded identifiers, and references to raw evidence.

10. Evidence & Confidence Model

Deterministic scoring for hosts and BLE devices with reasons attached. Confidence is surfaced in UI and exports and never overwrites raw observations.

11. Data Flow Rule (Absolute Law)

If CamUtil knows something, it must use it. No copy/paste workflows. Known data auto-populates actions and reports.

12. Current State

CamUtil is feature-complete for v1. Remaining work focuses on polish, DMG packaging, and integration with additional lab systems.

End of Chronicle

This document is intended to be used as a persistent reference to realign future work and prevent loss of context across sessions.