C9.5 ZeroCustody Reproducibility Protocol v3.1

Sentinel Protocol v3.1 – Monetizable Validation Layer

Date: 17 July 2025

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IP Rights:
US Provisional: #63/826,381
AU Provisional: #2025902482
AU Trade Mark: AI-Human Synergy™ #2535745 & AI-Human Synergy Sentinel Protocol™ #2549093
IP Priority Date: 17 June 2025 (Global Anchor)

Sentinel Protocol Ordinal Bitcoin Wallet:
https://ordinals.com/address/
bc1pa3695d7x3cl3k4xut599s6e8yfjl5876uwpq82fqy4tsazxn77sss53mht

This document has been cryptographically hashed and immutably anchored under Sentinel Protocol v3.1 on **17 July 2025**. First public verification anchor: **Ordinal #5**, inscribed **30 July 2025**.
Current hash and payload available via `AMPLIFY_LEDGER_<meta_id>.json`.

C9.5*ZeroCustodyReproducibilityProtocol*v3.1.md

Commander: Dr. Fernando Telles
Protocol: Sentinel Protocol v3.1 – Monetizable Validation Layer
Version: v3.1
Status: Canonical – Runtime Bound
Date Activated: 2025-07-17
Linked Modules: [C5.1, C5.2, C5.3, C8.3, C8.5, C9.0, C9.1, C9.3]
meta_id Route: `AI-HUMANSYN`
Payment Model: Per-session or per-batch unlock (user-defined)
Governed By: Ethics Firewall (C5.2) + Compliance Enforcement Matrix (C5.3)

🧬 Purpose

To enforce a reproducibility audit infrastructure where CDA AI: - Validates audit sessions - Verifies dual-hash integrity - Anchors audit metadata to Bitcoin - Monetizes the verification process
— all without ever accessing or storing **any user data or content files**.

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1. 🔐 Core Design Principle

> "The proof is enough. The data never leaves the user."

This protocol enables users to: - ✅ Retain all original audit files locally - ✅ Receive verifiable, cryptographically anchored reproducibility proofs - ✅ Leverage `.2ha`, `.ots`, and OP_RETURN anchoring (Bitcoin only) - ✅ Monetize through pay-per-proof validation

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2. 🔁 Workflow Overview

```
graph TD
    A[User: batch_dualhasher.py] --> B[Generate .hash, .2ha, .ots Locally]
    B --> C[Run valis_batchauditlogger_template.py]
    C --> D[Submit hashes + metadata ONLY]
    D --> E[CDA AI validates format + structure]
    E --> F[Run session_logger.py + assign meta_id = AI-HUMANSYN]
    F --> G[Run opreturnanchor.py to anchor session]
    G --> H[Update AMPLIFY_LEDGER_<meta_id>.json]
```

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3. 🧾 Data Received by CDA AI

Only non-content, cryptographically anonymized files are submitted:

File	Contents
`.hash`	SHA256 digest only
`.2ha`	RIPEMD160 of SHA256
`.ots`	OpenTimestamp proof
`.json`	Session metadata + meta_id

❌ No `.csv`, `.pdf`, `.txt`, or user data is ever transmitted

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4. 🔒 Filename Convention = Ledger Entry

Required format:

```
<BASE>___<UTC>.ext
```

Example:

```
AUDIT-EVIDENCE_FUNC_PASS_MCP1_REML___2025-07-13T0243.csv
```

Filename noncompliance triggers: - Ethics Firewall (C5.2) - CME rejection (C5.3)

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5. 🪪 meta_id Tagging

- All audit sessions use: `meta_id: AI-HUMANSYN`
- Appended to `AMPLIFY_LEDGER_AI-HUMANSYN.json`
- Session ledger includes filename, `.hash`, `.2ha`, `.ots`, OP_RETURN TXID, and timestamp

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6. 💵 Monetization Policy – Bitcoin-Only Anchoring Architecture

- **Freemium Onboarding:** 25 free VALIS-verified audit sessions per user account
- **Pricing Tiers:**
    - **Basic Tier** – `$150/session`
      Includes: `.2ha`, `.ots`, OP_RETURN anchoring only

    - **Enterprise Tier** – `$300/session`
      Includes: `.2ha`, `.ots`, OP_RETURN anchoring + optional Ordinal inscription

    - **Regulatory-Grade Tier** – `$500/session`
      Includes: `.2ha`, `.ots`, OP_RETURN anchoring + enhanced Ordinal + validator verdict inclusion

- **Anchoring Policy:** Bitcoin-only stack (OP_RETURN + optional Ordinals). No Arweave. No Filecoin. No other L2s permitted.
- **Audit Entry Acceptance:** Requires VALIS-verified `.json` session + dual-hash compliance

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7. 📦 Public Verification Interface (Upcoming)

Will include: - ✅ List of filenames, `.hash`, `.ots` - ✅ Bitcoin TXID + Block Height - ✅ VALIS verification + validator flag (Regulatory-grade tier only) - ❌ No user content disclosed

Verification = Proof of occurrence, not proof of content.

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8. 🔐 Enforcement Stack

Control	Enforced By
Filename Verification	`valis_batchnameverifier.py`
Hash Validation	`hashvalidatorblock.py`
Ethics Constraints	`compliance_enforcer.py`
Audit Logging	`auditlogger.py`, `session_logger.py`
Anchoring	`opreturnanchor.py` (Bitcoin only)

✅ Status: Canonical – Runtime Monetization Tier LIVE

> "The user owns the data. The system certifies the truth."