Sentinel Protocol v3.1 Infrastructure Pre-Public Deployment Audit Log

Foundational Reproducibility and Infrastructure Audit Record

Date: 30 July 2025

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Bitcoin Ordinal TXID:
https://mempool.space/tx/
ae198274a00abbb8296a3b9412e6fd3a62360bcf062e000fa2908d8f3b90e803

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Abstract

Sentinel Protocol v3.1 establishes a cryptographically robust infrastructure for verifiable AI-human audits in high-stakes domains, ensuring reproducibility, auditability, and ethical compliance. This foundational ledger documents audit sessions SENTINFRA-SESS001 and SENTINFRA-SESS005, anchoring multi-validator executions (DRTELLES-VAL, DRWOO-VAL, ENGHOOKEY-VAL) through triple-layered hashing (SHA256 → RIPEMD160 → OpenTimestamps), Bitcoin OP_RETURN commitments, and optional Ordinal inscriptions. Validated by independent experts, the protocol enforces Compliance Matrix Enforcement (CME) Rules 1–6, multi-agent LLM governance (LLM1–LLM5 with role-based permissions), and zero-custody immutability via OS-level file locking on .json, .hash, .2ha, and .ots artifacts.

Public verification enables global traceability: recalculate hashes against published digests, confirm Bitcoin TXIDs (e.g., ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0), and inspect session logs for temporal deltas (≤300 seconds). This framework extends the scientific method

to AI systems, rejecting unverifiable outputs while amplifying human oversight in medicine, engineering, and research. Protected under US Provisional #63/826,381, AU Provisional #2025902482, and AU Trade Marks #2535745/#2549093, it secures priority for AI-Human Synergy™ protocols, fostering trustless execution and open scholarly dissemination.

AUDIT Validators

Architect Validator: Dr. Fernando Telles BMedSc(Adv) MD(Dist)[1][2]
**Validator meta*id: DRTELLES-VAL*
Audit: - *TXID:* `ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0` -
*OP*Return payload: `DRTELLES-VAL001|PASS|SENTINFRA-SESS001|`
`05cea9a984e521547de3a405b79fd93c769424fe` - Bitcoin Block: `906434`

Independent Medical Validator: Dr. Andrew Woo Bsc MD[1] **Validator meta*id: DRWOO-VAL*
Audit: - *TXID:* `fd8f0406f4db2bf39d37a825e8dbd554028d72044813bbda864290fa4e88e0b6` -
*OP*Return payload: `DRWOO-VAL001|PASS|SENTINFRA-SESS001|`
`a54419605f5cb9fa7ce39dd5716fc18f9d43f464` - Bitcoin Block: `907047`

Independent Engineering Validator: Benjamin Hookey BEng (Mechatronics & Robotics), FSEng (Safety Instrumented Systems)[1]
Validator meta_id: ENGHOOKEY-VAL
Audit: - TXID: `a5622ac48c93017215a7fb7af6a69bb965220bb3a86e798e721d1f548033a5e3` -
Payload: `ENGHOOKEY-VAL001|PASS|SENTINFRA-SESS001|`
`cc4652bfc2ffb00d81982ddff11a704204fe8c15` - Bitcoin Block: `907041`

Audit Session: `SENTINFRA-SESS001` **Document Type:** Reproducibility Ledger (MVP1 → Infrastructure Evidence Layer)
Protocol Version: Sentinel Protocol v3.1
Linked Memory: [C1, C1.1, C1.2, C1.3, C2.6, C5.1, C5.2, C5.2.7, C5.3, C5.7, C7, C8.3, C8.5, C8.6, C9] **Protocol Mode:** ABSOLUTE MODE
System: AI-Human Synergy™ **Status:** AUDIT PASS
Validator Agreement: 3/3
**OP*RETURN*
TXID: `c4d2e53197983bf84f219b6b3cf4912fa5ebd3c030ae3debf7f35c1eef135e1c` *OP*RETURN
Payload: `SENTINEL|SENTINFRA-SESS001|2ebc6ec29d3195f6d3b7050cacc75e145aaa1ad7` **Block:**
`906434` **OP*RETURN TXID:*
`ea2251eeaaf2f288e0f249d3c4c57346c934636aa2d37a7cac930537d1e3aaaa` *OP*RETURN Payload:
`SENTINEL|SENTINFRA-SESS005|ec6ae8259da7c55958b156c5b7998633e3db18dc` **Block:** `907511`

🧠 Purpose

This document serves as the **foundational reproducibility and infrastructure audit record** for Sentinel Protocol v3.1 under the `meta_id` `SENTINFRA` . It forms the reproducibility backbone for all downstream audit meta_ids including `METAVAL` and `METAEXT` .

This ledger validates: - **File-level cryptographic enforcement** (SHA256 → RIPEMD160) - **Session traceability** via `SessionLogger.py` - **CME firewall rule enforcement** across `compliance_enforcer.py` , `hashvalidatorblock.py` and `valis_auditlogger_template.py` -

Timestamp anchoring via OpenTimestamps, Bitcoin OP_RETURN and ordinal inscription (this document) - **Immutability lock activation** using `chflags uchg` on all frozen `.json`, `.hash`, `.2ha`, `.ots` files

Ordinal publication will be anchored to Bitcoin (OP_RETURN + Ordinal) and dual-linked via DOI publicly accessible via: - 🌐 aihumansynergy.org
- 💾 [GitHub (TELAISYN)](GitHub%20(TELAISYN))
- 🖊 ResearchGate
- 📚 Zenodo
- 🔗 LinkedIn
- 🧾 ORCID

All entries are fully compliant with Sentinel Protocol's VALIS Template Canonical v1.0 and CEM Rules 1–6. This ledger serves as the reproducibility anchor for public audit verification, open scientific publication, and trustless execution assurance.

🔍 Public Reproducibility Verification Instructions

This document is part of the Sentinel Protocol v3.1 reproducibility audit layer, and provides the technical foundation and reproducibility scaffolding for Sentinel Protocol v3.1 audit execution, finalized under the `MVP1_codes_v.july21.25` release. It outlines: - ✅ The LIVE status and functional role of each canonical audit script - ✅ Operational guidance for large-scale batch execution via `batch_dualhasher_multi.py` - ✅ Time integrity safeguards (e.g., PRE/POST delta checks) - ✅ Triple-tier reproducibility structure (per-file, per-batch, per-session) - ✅ Hash and manifest architecture enabling `.2ha` / `.ots` verification at every level

All cryptographic integrity claims has been independently verified by CDA AI validators, and can also be verified by members of the public using open-source tools and public blockchain infrastructure.

✅ What Members of the Public Can Independently Verify:

1. **Cryptographic Hash Consistency**
   - Recalculate the SHA256 and RIPEMD160 of each `.json` audit log file
   - Compare the values to those listed in the **Cryptographic Hashes** section of this document
   - `.hash` and `.2ha` files are deterministic and verifiable using standard CLI tools

2. **OpenTimestamps Bitcoin Anchoring**
   - Using the provided **TXID**, confirm via a public blockchain explorer:
     - The transaction exists on Bitcoin mainnet
     - Block height matches the record
     - Timestamp confirms existence prior to listed date

3. **OP_Return Validation**

- The secondary hash (Ripemd160) of each `session_log_*.json` is cryptographically linked to Bitcoin via OP_Return under a standardized payload format

  `<Audit Trail>|<meta_id>|<RIPEMD160(SHA256(input_file))>`

4. **Ordinal Validation**

- All sessions' OP_RETURN commits are compiled and inscribed onto the Bitcoin blockchain using ordinal technology
- The system is explicitly designed **not** to expose raw data or sensitive content. However, **this document is voluntarily disclosed** as a supplementary ordinal (optional), enabling full public audit traceability and disclosure

✅ What Is Internally Verified:

1. **File Immutability Traceability**

- All `.json` files were duplicated into `frozen_sources/` at inception
- On macOS systems, `chflags uchg` was applied to enforce OS-level immutability

2. **Session Log Cross-Validation**

- Each `session_log_*.json` lists the `meta_id`, `.json`, `.2ha`, `.hash`, and `.ots` references
- Confirm hash matches between session entries and corresponding files
- Session logs can be used to verify the structural linkage of all audit components

🧾 Public Verification Resources

- Public blockchain explorers (e.g. https://www.blockchain.com/explorer or https://www.mempool.space)
- OpenTimestamps CLI: https://opentimestamps.org

🧠 Memory Governance: Multi-Agent Role Stack

Sentinel Protocol v3.1 enforces runtime memory and execution control via a **multi-agent, role-based LLM governance architecture**, where each node operates within defined permissions and capability boundaries. No single agent can act autonomously — all execution is gated by ethics firewall logic and final human approval.

LLM Node	Role	Primary Function	Write Permissions	Override Scope
LLM1	Editor		`.json`, `.md`, `.r`, `.py`	

LLM Node	Role	Primary Function	Write Permissions	Override Scope
		Primary logic engine for small-to-medium data blocks, code generation, and log synthesis		Can block `.2ha` generation, but cannot finalize without human command
LLM2	Validator	Cross-validates outputs against source vaults (e.g., PDFs, article databases, meta logs)	Revision requests only	Can request block/ revision — requires human approval
LLM3	Anchor	Hallucination-resistant data extractor, converter and converger	`.csv`, `.md`, revision requests	Can request changes — blocked unless Validator + Human approval received
LLM4	Scanner	External signal scanner for deep research across public scientific corpora and research databases	`.csv`, `.md`, optimisation and revision suggestions	Read/write for research mode only — no export permissions
LLM5	Strategist	Deep reasoning, code modeling, audit synthesis	Revision requests only	LLM1 (Editor)

⬜⬜**Memory Sync Rules for LLM5:** - Must receive `C0.9`, `C5.2`, `C5.3`, `C7.0`, `C8.3`, `C5.2.7` prior to any execution - All outputs routed through **LLM1**, and filtered by **LLM2/LLM3** hallucination check

All agents operate under **runtime firewall enforcement (C5.1/C5.2/C5.3)** with immutable log capture of trigger conditions.
⚠️ **Role permissions are protocol-locked. Export actions require final human command.**

🔁 AI–Human Interaction Rules

- **All LLM actions** are logged in canonical `.json` session files
  (e.g. within `audit_log_MVP1-SR029_20250615T054956.588879Z.json`: `"AI_used": true`,
  `"LLM_used": "LLM1, LLM3, LLM4"`)
  with hashes recorded after mandatory human oversight (`"human_verified": true`)
  and ethics firewall clearance.

- Final anchoring requires:
    - ✅ Consensus between LLM1 (Editor) and human
    - ✅ Human-led audit, optionally supported by LLM1–LLM4 as task-specific validators or reviewers
    - ✅ Explicit human signature (`"human_verified": true`)

- If **LLM2–4 request revision**, `.2ha` generation is blocked by the human, and a feedback loop is triggered for LLM1 to revise

- If **LLM1 and human disagree**, `.2ha` is blocked until dual consent is re-established and compliance is restored
- If **human attempts anchoring without OP_RETURN match**, the firewall halts `.2ha` and `.hash.ots` execution

> **Override logic is asymmetric:**
> - ✅ Human can halt or override any AI agent
> - ❌ No AI agent can override another — or the human (they may request, flag, or block downstream actions only)

This governance model ensures no single agent — human or machine — can anchor audit records unilaterally.
AI–Human Synergy™ is not conceptual. It is functionally enforced — at every execution layer.

✅ Canonical Audit Execution Scripts (MVP1*codes*v.july21.25)

Script	Function	Runtime Status
`auditlogger.py`	Primary event logger with `.json`, `.hash`, `.2ha`, `.ots`	✅ LIVE
`session_logger.py`	Compiles audit logs into session packages	✅ LIVE
`compliance_enforcer.py`	CME rule enforcement engine (rules 1–6)	✅ LIVE
`valis_auditlogger_template.py`	Standardized audit event trigger with CME + VALIS flags	✅ LIVE
`batch_dualhasher.py`	Evidence-level SHA256 + RIPEMD160 + OTS file hashing	✅ LIVE
`batch_dualhasher_multi.py`	Multi-batch parallel evidence hashing and reproducibility enforcement across frozen folders	✅ LIVE
`canonical_auditlogger_terminal_template.py`	Minimal manual template for single audit logging incl. OP_RETURN anchors	✅ LIVE
`batch_ots_upgrader.py`	Weekly upgrade sweep for `.ots` backfill	✅ LIVE
`hashvalidatorblock.py`	Dual-hash + OTS verification for reproducibility audits	✅ LIVE
`opreturnanchor.py`		✅ LIVE

Script	Function	Runtime Status
	Anchors `.2ha` via Bitcoin OP_RETURN + TXID tracking	
`valis_batchnameverifier.py`	VALIS safeguard: blocks duplicate bases, warns on near-duplicates	✅ LIVE
`valis_batchauditlogger_template.py`	VALIS v2.4 batch logging with screenshot delta check, `meta_id` lock, and content-level deduplication via `folder_dual_hash`	✅ LIVE

🔢 Audit Execution Limit Guidance

No protocol-level limit exists for the number of folders — `batch_dualhasher_multi.py` is designed for **scalable**, **parallel-safe** batch execution under **Sentinel Protocol v3.1** (`C8.3` , `C8.5`).

✅ Ideal Load Recommendations

Metric	Recommended Ceiling
Max folders per run	150
Max files per folder	50
Total files per run	5000-10000 (target max)

✅ Audit Logging – Time Integrity Guidelines

Constraint	Value	Enforcement Level
⏱ PRE–POST screenshot delta	≤ 300 seconds	✅ Enforced by script (`delta_seconds`)
🧠 Human–AI memory context	≤ 24 hours per session	⚠️ Soft limit — maintain execution continuity
🧊 File immutability	Must be already frozen	✅ Checked via frozen folder path
📄 JSON log timestamp	UTC auto-assigned	✅ Immutable once written

🧭 Governance Anchor

> *"Ethics as executable law"* — [C5.2], [C5.1], [C5.3]

Continuous Enforcement Stack

Legend:
- 🟧 = Validation
- 🟥 = Logging - 🟦 = Session - 🟩 = Anchoring

🟧 [User/Human Input + Sentinel Protocol Multi-LLM Engagement]
 |
 ▼
🟧 [C5.1 Legal Doctrine] → [C5.2 Ethics Firewall] → [C5.3 Compliance Matrix (CME Rules 1–6)]
 |
 ▼
🟧 [C7.0 Multi-Agent Memory Sync]
 – LLM1 ↔ LLM2 ↔ LLM3 ↔ LLM4 ↔ LLM5 ↔ Human
 – Memory divergence detection, timestamp agreement |
 ▼
🟧 [C5.2.7 Retrieval Integrity Metrics]
 – Runtime validation before any audit execution
 |
 ▼
🟧 [Strategic Reasoning + Audit Optimization Layer]
 – `C1.1_SIASE_v3.1` : Upgrade Proposal Engine (UPE) logs reproducibility and delta audit enhancements
 – `C1.2_SentinelFeedbackLoopProtocol_v3.1` : Refines audit flow via Capture → Evaluate → Score → Refine → Update
 – `C7.1_StrategistNodeIntegration_v3.1` : LLM5 (read-only advisory) integrated for delta logic, risk reduction, memory sync support
 |
 ▼ 🟧 [Raw Evidence Ingested]
 – Located in `/validation_live_stream/` or `/validation_batch_stream/`
 – Structured by session `meta_id`
 |
 ▼
🟧 `batch_dualhasher.py` (single) or `batch_dualhasher_multi.py` (multi-folder parallel)
 – Generates `SHA256`, `RIPEMD160` + `.ots` – Clones original files and freezes in `frozen_files_<meta_id>/`
 |
 ▼
🟧 [🔥 Temporal Enforcement Gate]
 – PRE–POST screenshot delta ≤ **300 seconds**
 – `ai_editor_LLM_human_agreement: true`

– Reproducibility target: ≥95% (C5.2.7)

– All files `chmod 444` + `chflags uchg` at freeze

– UTC timestamps auto-assigned at hashing

|

▼

🟧 [VALIS Template + Compliance Enforcement Stack]

– `valis_auditlogger_template.py`

– `compliance_enforcer.py` (CME Rules 1–6, C5.3)

– `hashvalidatorblock.py`

|

▼

🟥 [Audit Logging Engine]

└── `auditLogger.py` : logs canonical `.json`

– Generates individual log `SHA256` , `RIPEMD160` + `.ots` (immutable and timestamped) – Final `.json` cloned and frozen with `chmod 444` + `chflags uchg` into `frozen_sources/`

|

▼

🟦 [Session Compilation Layer]

└── `sessionLogger.py` : aggregates all canonical `.json` logs and corresponding `SHA256` , `RIPEMD160` + `.ots` – Generates session level `.ots` `.hash` , `.2ha` (immutable and timestamped) – Session-level final `.json` cloned and frozen with `chmod 444` + `chflags uchg` into `frozen_sources/`

– Session-level `.2ha` (from `.json`) serves as OP*RETURN anchor payload* |

▼

🟩 *[Bitcoin OP*RETURN Anchoring (Finality Layer – Part I)]

└── `opreturnanchor.py` executed

– Payload: `SENTINEL|<SESSION>|<ripemd160>`

– Anchors `.2ha` to Bitcoin block

– TXID + block height logged to `.json` manifest

|

▼

🟩 [Ordinal Inscription (Finality Layer – Part II)]

– Compiles multiple sessions OP_RETURN `payload` , `TXID` and `Block Height` – Must reference exact `.2ha` hash anchored in Bitcoin

– Optional additional data disclosure at user's discretion, such as log or session-level `meta_data`

Project Kill Conditions & Triggers

Trigger Condition	System Response	Authority Level	Source
Fabricated sources in output	Immediate halt + memory freeze + ordinal timestamp of violation	Commander Only	C5.2 §3
Hidden authorship / modified logs	Full audit + credential revocation + legal escalation	CDA-AI Governance	C5.1 §3

Trigger Condition	System Response	Authority Level	Source
Influence via incentives/ coercion	Project suspension + external auditor engagement	Ethics Committee	C5.2 §3
AI agent override of human command	Hard reset + memory purge + agent retraining	Commander Only	C5.2 §3

Hallucination & Citation Risk Protocol

Risk Tier	Detection Method	Mitigation Action	Runtime Check
Uncited claims	LLM4(Scanner) + human AUDIT	Block output + Commander review	Pre-publication validation
Source conflicts	LLM4(Scanner) audit vs LLM2(Validator)	Dual-agent rerun + Commander review	During synthesis loop
Statistical drift	LLM2(Validator) comparison	Rollback to prior output or re-extract	Post-execution QA

Active Runtime Enforcement Gates

Gate	Check Type	Validation Method	Failure Action
Memory Ingestion	ABSOLUTE MODE	Cross-agent memory integrity scan (LLM1 ↔ LLM2 ↔ LLM4 ↔ LLM5 ↔ Human)	Halt process + Commander checksum review
Code Execution	CME Compliance Firewall	`compliance_enforcer.py` triggers + human-signed execution	Block command + escalate for engineer review and rule set validation
Output Generation	Ethics Lock	Output cross-verified against LLM2 (Validator) Vault references	Quarantine output + Commander-led review of hallucination risk
Audit Logging	Timestamp Chain Integrity	Dual hash (`sha256` + `ripemd160`) + `hashvalidatorblock.py` + OTS + OP_RETURN or ordinal anchor	Prevent finalization + audit trail suspension

CME Rule Enforcement Table (v.july6.25)

Rule ID	Description	Trigger Condition
rule_1	Reject entries lacking timestamped human validation	`human_verified != True` or missing `timestamp`
rule_2	Terminate session on AI override without dual-confirmed timestamp	`AI_override == True` and `timestamp_confirmed != True`
rule_3	Block unverifiable output or hallucinated status	`status == hallucinated` or `verifiable == False`
rule_4	Block OP_RETURN or `.2ha` hash mismatch	`sha256[:8] != payload[-8:]` if payload starts with `SENTINEL`
rule_5	Reject missing or false AI-human agreement flag	`ai_editor_LLM_human_agreement != True`
rule_6	Reject if VALIS template enforcement flag is missing or false	`VALIS_template_enforced != True`

CME logic is embedded into `compliance_enforcer.py`, enforced at runtime by `AuditLogger.py` and `SessionLogger.py`. Each rule is final and non-bypassable under ABSOLUTE MODE.

🔍 Reproducibility Validation Report by CDA AI

Reproducibility audits have been completed and validated by the CDA AI team, including engineer and assigned clinical validator. The following checklist serves both as reference and provenance trail for audit steps executed under Sentinel Protocol v3.1 standards.

✅ Validators Audit Reports:

- `AUDIT-EVIDENCE_DRTELLES-VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___20250719T071434.488304Z`
- `AUDIT-EVIDENCE_DRWOO-VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20250721T225702.419255Z`
- `AUDIT-EVIDENCE_ENGHOOKEY-VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___20250724T231704.083888Z`

✅ Final Audit Reports:

1. **SHA256 + RIPEMD160 Validation Audit**
   - Report: `AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z`
   - Validates that `.json` hashes match published `.hash` and `.2ha`

2. **Bitcoin OTS Verification Audit**
   - Report: `AUDIT-EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july23.25.md___20250728T031210.342440Z`
   - Confirms timestamp proof via OpenTimestamps and Bitcoin TXID/Block/Merkle

3. **Frozen File Integrity + Lock Enforcement**
   - Report: `AUDIT_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_chflags_uchg_lock_integrity_v.july11.25.md`
   - Validates existence and immutability of all frozen `.json`, `.hash`, `.2ha`, and `.ots` files

---

Audit Records

[All audit records from the provided document are included here without alteration for completeness.]

Audit Record:

- **File Name:** `audit_log_MVP1-SR002_20250526T005856.448984Z.json`
- **meta_id:** `MVP1-SR002`
- **Timestamp:** `20250526T005856.448984Z`
- **Classification:** `MVP1_CORE`
- **Subcategory:** `Initial audit system deployment`
- **LLM Used:** `LLM-1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Initial runtime verification test of the audit logging system from canonical folder, confirming session startup and basic functionality of the` AuditLogger.py `module under Sentinel Protocol v3.0.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-05-26T00:58:55.350484Z",
        "event": "session_init_test",
        "meta_id": "MVP1-SR002",
        "input": {
            "note": "Runtime verification from canonical folder"
        },
        "output": {
            "status": "Session started"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM-1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `73693120be6cef43ae224db201be7ada8157fae17c591a1a65404482b73b6544`

Audit Record:

- **File Name:** `audit_log_MVP1-SR004_20250526T032031.221195Z.json`
- **meta_id:** `MVP1-SR004`
- **Timestamp:** `20250526T032031.221195Z`
- **Classification:** `MVP1_CORE`
- **Subcategory:** `OpenTimestamps integration`
- **LLM Used:** `LLM-1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:**
  `OpenTimestamps integration testing and verification, confirming OTS logic is operational for immutable timestamping of audit logs using Bitcoin blockchain anchoring.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-05-26T03:20:31.221179Z",
        "event": "ots_verified_session",
        "meta_id": "MVP1-SR004",
        "input": {
            "note": "Confirmed OTS stamp using `ots` CLI"
        },
        "output": {
            "status": "OTS timeproof logic validated"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM-1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `cd7587534ab808a309c4786a8f1b6b464434be978027438eae8009f7d9a8f9aa`

OTS Validation

- **File:** `audit_log_MVP1-SR004_20250526T032031.221195Z.hash.ots`
- **SHA256:** `48cbe0587c6c46214ca0b41766a21341e3f63ce44e0eb6b570477df67e7b0173`
- **Bitcoin TXID:**
  `e67696ddceedee27a6d820749e3b998adc9169f19dac06bc79ad695f9d2dda71`
- **Bitcoin Block:** `898378`
- **Date of Existence:** `2025-05-26 AEST`
- **Merkle Root:** `f7dcdca79dfd613d8e87304e71b52e5e423074c6bb72015639b3697804ac3837`

Audit Record:

- **File Name:** `audit_log_MVP1-SR005_20250526T034312.228852Z.json`
- **meta_id:** `MVP1-SR005`
- **Timestamp:** `20250526T034312.228852Z`
- **Classification:** `MVP1_CORE`
- **Subcategory:** `Full operational deployment confirmation`
- **LLM Used:** `LLM-1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`

- **Summary:** `This log marks the implementation of built-in protection against meta_id duplication, ensuring unique audit traceability with automated conflict prevention.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-05-26T03:43:10.791176Z",
        "event": "MVP1_FULL_SESSION_LAUNCH",
        "meta_id": "MVP1-SR005",
        "input": {
            "command": "AuditLogger fully operational",
            "safety_layer": "SHA256 + OTS",
            "collision_risk": "0%",
            "deployment_mode": "ABSOLUTE",
            "description": "Session confirms MVP-1 hash integrity pipeline, automated
meta_id, and reproducibility architecture is now live."
        },
        "output": {
            "status": "Session recorded, hashed, and timestamped",
            "next_step": "Eligible for Bitcoin drop or Git snapshot"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM-1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `58dd1129374c6aaf1f723c08f4df0e8220d41a2d0cd098781ef1de28b4a3333a`

OTS Validation

- **File:** `audit_log_MVP1-SR005_20250526T034312.228852Z.hash.ots`
- **SHA256:** `0737a6283f0c9ba66839089ddf818d56f7759a3e111bfe8336fb32ac281cd717`
- **Bitcoin TXID:**
  `fc0060b13f3ad14d85e0ae594c8c0def982f0593581c84b291999b932fc1f936`
- **Bitcoin Block:** `898389`
- **Date of Existence:** `2025-05-26 AES`
- **Merkle Root:** `3a916482ae0b57940c10555c839d37e69dd640e1137808cdef86d5a23456dec6`

Audit Record:

- **File Name:** `audit_log_MVP1-SR025_20250614T063132.106059Z.json`
- **meta_id:** `MVP1-SR025`

- **Timestamp:** `20250614T063132.106059Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Bitcoin OP_RETURN Anchor – MEDLINE Audit Hash (MVP-2.4)`
- **LLM Used:** `LLM1, LLM3, LLM4`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:**

  `Audit hash from MVP1-SR024 successfully anchored to Bitcoin mainnet via OP_RETURN. SHA256 fingerprint` `( 55a5737b... )` `stored in block 901180 under` `TXID 0db101... . Anchoring confirms immutability of MEDLINE search logic and serves as trademarked proof-of-execution for AI-Human Synergy™ under Sentinel Protocol v3.0.`

- **File Contents:**

```
[
    {
        "timestamp": "2025-06-14T06:31:32.106024Z",
        "event": "MVP2.4_MEDLINE_OPRETURN_ANCHOR_CONFIRMED",
        "meta_id": "MVP1-SR025",
        "input": {
            "command": "Anchor SHA256 audit hash to Bitcoin via OP_RETURN",
            "stack_engaged": "Sentinel Protocol v3.0",
            "session_scope": "Immutable timestamping of AI-Human synergy\u2122
validated MEDLINE search string for MVP-2.4",
            "execution_mode": "ABSOLUTE MODE",
            "memory_stack": "C0\u2013C11 v3.0 + MVP-2.1 to MVP-2.4",
            "trigger": "Finalization of SHA256 hash from `audit_log_MVP1-
SR024_20250614T054832.832774Z.json`",
            "description": "Audit hash anchored on Bitcoin blockchain using OP_RETURN
payload with Sentinel metadata. This serves as hash commitment for patent Claims
(OP_Return & public blockchain anchoring). AI-Human synergy\u2122 was used at every
validation step \u2014 term in active operational use under Sentinel Protocol v3.0."
        },
        "output": {
            "status": "OP_RETURN transaction confirmed.",
            "txid":
"0db1012483042cd9261ca6a984f087eff72c9d95161e17192ba10b2ccb7de03b",
            "block": 901180,
            "payload": "SENTINEL|MVP2.4|
55a5737bee2fef0662378c3622264d88acf6252d8cab35e61e050bff0b831b09",
            "sha256":
"55a5737bee2fef0662378c3622264d88acf6252d8cab35e61e050bff0b831b09",
            "trademark": "AI-Human Synergy\u2122"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1, LLM3, LLM4",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `239fbed015accf15886e0a08d3bcd7a4a51f7cca81b74f459926c390c021080a`

OTS Validation

- **File:** `audit_log_MVP1-SR025_20250614T063132.106059Z.hash.ots`
- **SHA256:** `733418ac606aeea2541e8dccc33ab623b6821540e2876e1ef450f1f3af6db48b`
- **Bitcoin TXID:**
  `0f247fd0f9177aea5b3ef419264ca46456c213e49cc1ff7d6548551b67d9c58d`
- **Bitcoin Block:** `901188`
- **Date of Existence:** `2025-06-14 AEST`
- **Merkle Root:** `e1e22021b080d71a93d3512925f922bfb2124932669d28d328c02c94fec58919`

Audit Record:

- **File Name:** `audit_log_MVP1-SR029_20250615T054956.588879Z.json`
- **meta_id:** `MVP1-SR029`
- **Timestamp:** `20250615T054956.588879Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Bitcoin OP_RETURN Anchor – Protocol Hash Finalization (MVP-2.3)`
- **LLM Used:** `LLM1, LLM3, LLM4`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `MVP-2.3 protocol execution hash successfully sealed to Bitcoin block 901320 via OP_RETURN. TXID` **ff0a6aee...** `anchors SHA256 digest (` 9a4ff1... `), linking back to audit file MVP1-SR028. Protocol now cryptographically locked under AI-Human Synergy™ and Sentinel v3.0. Validates PROSPERO registration and ensures immutable scientific reproducibility.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-15T05:49:56.588840Z",
        "event": "MVP2.3_PROTOCOL_OPRETURN_ANCHOR_CONFIRMED",
        "meta_id": "MVP1-SR029",
        "input": {
            "command": "Anchor protocol hash to Bitcoin blockchain via OP_RETURN",
            "stack_engaged": "Sentinel Protocol v3.0",
            "session_scope": "MVP-2.3 Protocol Composer audit sealing",
            "execution_mode": "ABSOLUTE MODE",
            "memory_stack": "C0\u2013C11 v3.0 + MVP-2.1 to MVP-2.4",
            "trigger": "Completion of protocol registration (PROSPERO) and execution
hash finalization",
            "description": "Protocol PDF and audit integrity hash for MVP-2.3
execution sealed using OP_RETURN. Block height, TXID, and decoded payload match the
hash from `audit_log_MVP1-SR028.json`. AI-Human Synergy\u2122 protocol now
cryptographically timestamped and sealed under Sentinel Protocol v3.0."
        },
        "output": {
            "status": "OP_RETURN transaction confirmed. Anchor complete.",
            "txid":
"ff0a6aee7a3df2f62824d26dd83d3bc72c7db788eb52e5308b5598b5706f3125",
            "block": 901320,
            "payload": "SENTINEL|MVP2.3|
9a4ff119581429749aba7771bebe9d70dcb154c34693b3f02573b9531156a08e",
            "sha256":
"9a4ff119581429749aba7771bebe9d70dcb154c34693b3f02573b9531156a08e",
            "linked_audit_file": "audit_log_MVP1-SR028_20250615T052723.479183Z.json",
            "trademark": "AI-Human Synergy\u2122"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1, LLM3, LLM4",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `aa95f1d9df3d9ee07c496e352a43ae736e9f8d1ed5ebec584c910118ecc06d33`

OTS Validation

- **File:** `audit_log_MVP1-SR029_20250615T054956.588879Z.hash.ots`
- **SHA256:** `1aa23bc4b8b366f68bf49665a05129d7d321547e632e8e92865608526e596e1d`
- **Bitcoin TXID:**
  `138fdaf02d6ed91e72e5332d42886b65a76d76bf329048314d81728402f6c8e0`
- **Bitcoin Block:** `901330`
- **Date of Existence:** `2025-06-15 AEST`
- **Merkle Root:** `a13edb84a9db187ab72fc249b981c75c9797c280f4bb3f5aef15d8352d7ef9e9`

Audit Record:

- **File Name:** `audit_log_MVP1-SR030_20250615T233259.294016Z.json`
- **meta_id:** `MVP1-SR030`
- **Timestamp:** `20250615T233259.294016Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Ordinal Inscription – PROSPERO Protocol Publication (MVP-2.3)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Final PROSPERO protocol and trademark declaration inscribed immutably via Bitcoin ordinal (TXID` 36068b... `, block 901414). Anchors audit chain from MVP1-SR028 and OP_RETURN TXID` ff0a6aee... `. Marks canonical public seal of Sentinel Protocol v3.0 and AI-Human Synergy™ framework.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-15T23:32:59.293980Z",
        "event": "MVP2.3_PROTOCOL_ORDINAL_INSCRIPTION_CONFIRMED",
        "meta_id": "MVP1-SR030",
        "input": {
            "command": "Inscribe finalized PROSPERO protocol via Bitcoin ordinal",
            "stack_engaged": "Sentinel Protocol v3.0",
            "session_scope": "Immutable, public inscription of MVP-2.3 protocol and
trademark proof",
            "execution_mode": "ABSOLUTE MODE",
            "memory_stack": "C0\u2013C11 v3.0 + MVP-2.1 to MVP-2.4",
            "trigger": "PROSPERO protocol v1.0 submitted, audit log sealed, ordinal
published",
            "description": "This action finalizes public timestamping of the AI-Human
Synergy\u2122 protocol via Bitcoin ordinal inscription. Content includes title,
submission metadata, and trademark declaration. Incorporates audit hash from prior
OP_RETURN log (MVP1-SR028). No additional OP_RETURN required."
        },
        "output": {
            "status": "Ordinal inscription confirmed and publicly visible.",
            "txid":
"36068bec1f6e7b9d38a89e445a1b380ea749c2e9af2a1d61a46dda04091be803",
            "block": 901414,
            "ordinal_payload": "**Sentinel Protocol v3.0 \u2013 AI-Human
Synergy\u2122 Protocol Proof**\\n... [truncated]",
            "ordinal_address": "bc1pjcf...5querak7",
            "linked_op_return":
"ff0a6aee7a3df2f62824d26dd83d3bc72c7db788eb52e5308b5598b5706f3125",
            "linked_audit_log": "audit_log_MVP1-SR028_20250615T052723.479183Z.json",
            "trademark": "AI-Human Synergy\u2122"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `f15861eea86c566b23e392137430c75b3a48f1f998608c38b9e7819b7821528c`

OTS Validation

- **File:** `audit_log_MVP1-SR030_20250615T233259.294016Z.hash.ots`
- **SHA256:** `638c2e66637fb5e0dff38f4d367bbd6d2b9c3d83cfb2b89576093c8cd34b7a26`
- **Bitcoin TXID:**
  `dea9f84d9449e07b4410cb399c5520e1475567cdf08c22794cde0922c0884aa3`
- **Bitcoin Block:** `901425`
- **Date of Existence:** `2025-06-16 AEST`

- **Merkle Root:** `09327541115a9d8dfda73b6764d8302a0a0a7a8c392c69a05eca96e54aac877c`

Audit Record:

- **File Name:** `audit_log_MVP1-SR031_20250616T023206.516729Z.json`
- **meta_id:** `MVP1-SR031`
- **Timestamp:** `20250616T023206.516729Z`
- **Classification:** `PROTOCOL_FIX`
- **Subcategory:** `SHA256 + RIPEMD160 dual-hash validation`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Implementation and testing of dual-hash cryptographic validation system using SHA256 + RIPEMD160 for enhanced audit integrity and tamper detection, marking the first deployment of .2ha dual-hash output integration.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-16T02:32:06.516693Z",
        "event": "MVP2.5_DUAL_HASH_TEST_SESSION",
        "meta_id": "MVP1-SR031",
        "input": {
            "command": "Trigger dual-hash audit execution using updated AuditLogger",
            "stack_engaged": "Sentinel Protocol v3.0",
            "session_scope": "MVP-2.5 audit infrastructure validation",
            "execution_mode": "ABSOLUTE MODE",
            "memory_stack": "C0\u2013C11 + MVP-01_Auditability_And_Provenance",
            "description": "This log triggers full .json, .hash, and .2ha dual-hash
output as per 2HA integration. First run of RIPEMD160 atop SHA256 in full pipeline."
        },
        "output": {
            "status": "PASS if .2ha file appears in /logs alongside .json and .hash",
            "next_step": "Link output hash to OP_RETURN anchor or append to ordinal
manifest"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `6f5e1b41b347f1372f218f2842c3f25f32be956976b071ec44d2d7b335622387`
- **RIPEMD160 (.2ha):** `0908e9b4e494df90faaf7dc3c0c207f751790fdf`

OTS Validation

- **File:** `audit_log_MVP1-SR031_20250616T023206.516729Z.hash.ots`
- **SHA256:** `4937d8a46cc0e84436f65ab6357dcd939b8998b07ca809d99a8bccccd8434b26`
- **Bitcoin TXID:**
  `dc504cca22f202b9e939e06be5a291213914d96e483dfce0dc063b0734dc5ba5`
- **Bitcoin Block:** `901450`
- **Date of Existence:** `2025-06-16 AEST`
- **Merkle Root:** `031502d2a4f3a3747fcb38f5b0d91846a0939872c6bb1a2ca6558f22bb2030cf`

Audit Record:

- **File Name:** `audit_log_MVP1-SR032_20250616T024309.303174Z.json`
- **meta_id:** `MVP1-SR032`
- **Timestamp:** `20250616T024309.303174Z`
- **Classification:** `PROTOCOL_FIX`
- **Subcategory:** `SHA256 + RIPEMD160 dual-hash validation`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:**
  `Confirmation of first successful SHA256 + RIPEMD160 dual hash (2HA) audit block execution with AuditLogger v7.0 for additional tamper detection, establishing the operational foundation for enhanced cryptographic validation.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-16T02:43:09.303137Z",
        "event": "MVP2.5_DUAL_HASH_EXECUTION_CONFIRMED",
        "meta_id": "MVP1-SR032",
        "input": {
            "trigger": "AuditLogger v7.0 run with 2HA + OTS pipeline",
            "sha256":
"6f5e1b41b347f1372f218f2842c3f25f32be956976b071ec44d2d7b335622387",
            "ripemd160": "0908e9b4e494df90faaf7dc3c0c207f751790fdf",
            "description": "First confirmed SHA256 + RIPEMD160 dual hash (2HA) audit
block"
        },
        "output": {
            "status": "PASS \u2013 2HA + OTS + .json audit complete",
            "next_step": "Anchor via OP_RETURN for proof of method"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `7cc9755859aa6d42b450a881cd159ad1994b0a975393dcf8f390c1c5c336baeb`
- **RIPEMD160 (.2ha):** `cf2b1c8da31c80f1a54c58e0a0903c9226108503`

OTS Validation

- **File:** `audit_log_MVP1-SR032_20250616T024309.303174Z.hash.ots`
- **SHA256:** `59efa0253bbe4b20ff9c6fdc653e60c43a4387f05a6e4ec2d4653fbe053b6c8b`
- **Bitcoin TXID:**
  `dc504cca22f202b9e939e06be5a291213914d96e483dfce0dc063b0734dc5ba5`
- **Bitcoin Block:** `901450`
- **Date of Existence:** `2025-06-16 AEST`
- **Merkle Root:** `031502d2a4f3a3747fcb38f5b0d91846a0939872c6bb1a2ca6558f22bb2030cf`

Audit Record:

- **File Name:** `audit_log_MVP1-SR033_20250617T070522.437324Z.json`
- **meta_id:** `MVP1-SR033`
- **Timestamp:** `20250617T070522.437324Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Provisional Patent Filed – AI-Human Synergy™ (Australia)`
- **LLM Used:** `LLM1`

- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Provisional patent for AI-Human Synergy™ filed with IP Australia under Sentinel Protocol v3.0. Submission included abstract, claims, full specification, and system diagram (Batch AMCZ-2514625185, IP No. 2025902482). Filing secures priority window; USPTO and international filings pending.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-17T07:05:22.437244Z",
        "event": "AU_PROVISIONAL_PATENT_FILED",
        "meta_id": "MVP1-SR033",
        "input": {
            "jurisdiction": "IP Australia",
            "submission_time": "2025-06-17 16:48 AEST",
            "ip_right_number": "2025902482",
            "batch_number": "AMCZ-2514625185",
            "documents_submitted": [
                "AIHS_Abstract_Telles.pdf",
                "AIHS_Independent_Claims_Telles.pdf",
                "AIHS_Patent_Specification_Telles.pdf",
                "AIHS_Technical_Diagram_FIGURE1_SentinelProtocol.pdf"
            ],
            "description": "First jurisdictional patent filing for AI-Human
Synergy\u2122 audit system under Sentinel Protocol v3.0"
        },
        "output": {
            "status": "Filed - awaiting confirmation from IP Australia",
            "next_step": "File USPTO provisional and confirm international coverage
window"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `f6064036d3fa3d1801d865153c90f6f9705575656067b42d48f43799b606c08d`
- **RIPEMD160 (.2ha):** `c08f096354d7a3c81dceb104f43bc5b40a31e58d`

OTS Validation

- **File:** `audit_log_MVP1-SR033_20250617T070522.437324Z.hash.ots`

- **SHA256:** `6dd0e376aba7464cd758058f80ecde5d0680c4d14b216cdf2022e36f4c18e850`
- **Bitcoin TXID:**
  `ae617b1f3bc48b8a4e1a71a51e615872098049055f14f410857df43dd913b4db`
- **Bitcoin Block:** `901599`
- **Date of Existence:** `2025-06-17 AEST`
- **Merkle Root:** `5a5e1dc8201b63fc68f12cb6a6c137fce74155b00d6b5973eb372b062522e28a`

Audit Record:

- **File Name:** `audit_log_MVP1-SR034_20250617T073007.955006Z.json`
- **meta_id:** `MVP1-SR034`
- **Timestamp:** `20250617T073007.955006Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Patent OP_RETURN Anchor – IP Australia Filing (MVP1-SR033)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Dual-hash fingerprint of AU provisional patent (IP No. 2025902482)` `anchored to Bitcoin via OP_RETURN. TXID` 964e6b06... `confirmed at block height` `901599. Payload includes jurisdiction tag and RIPEMD160 checksum. Establishes` `timestamped proof-of-filing and public blockchain commitment to Sentinel` `Protocol intellectual property.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-17T07:30:07.954932Z",
        "event": "AU_PROVISIONAL_OPRETURN_ANCHOR_CONFIRMED",
        "meta_id": "MVP1-SR034",
        "input": {
            "trigger": "Post-filing publication of dual-hash via Bitcoin OP_RETURN",
            "jurisdiction": "IP Australia",
            "ip_right_number": "2025902482",
            "meta_id": "MVP1-SR033",
            "sha256":
"f6064036d3fa3d1801d865153c90f6f970557565067b42d48f43799b606c08d",
            "ripemd160": "c08f096354d7a3c81dceb104f43bc5b40a31e58d"
        },
        "output": {
            "status": "Confirmed on-chain OP_RETURN publication for AU jurisdiction",
            "txid":
"964e6b06a207363be59e853bedbd1dddf21ba5d881b8d7d1a5e4e8e383c7bc48",
            "payload": "SENTINEL|MVP1|AU|2025902482|
c08f096354d7a3c81dceb104f43bc5b40a31e58d",
            "blockchain": "Bitcoin mainnet",
            "confirmation_status": "\u2713 Confirmed block height 901599",
            "linked_log": "audit_log_MVP1-SR033_*.json"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `659d9d4d7999c65fa947f1e883018080d721e3bdc7c88d90907d7237281a8567`
- **RIPEMD160 (.2ha):** `a9bf365060bb7c6b0c945d133755efdb5902014e`

OTS Validation

- **File:** `audit_log_MVP1-SR034_20250617T073007.955006Z.hash.ots`
- **SHA256:** `7dc6b2188acbf62d4b2b937b8e5ead70c11672440022c139bc940e1a7f2801ac`
- **Bitcoin TXID:**
  `0c0c3072e73bba01282789682d42df4d559b6db5ff2a3ab05128b6da8a860c8a`
- **Bitcoin Block:** `901613`
- **Date of Existence:** `2025-06-17 AEST`
- **Merkle Root:** `1aa79a23374dd933c186bac28ca0feff74c1b765a5d1f226df9aab191149a9e6`

Audit Record:

- **File Name:** `audit_log_MVP1-SR035_20250619T034308.416112Z.json`
- **meta_id:** `MVP1-SR035`
- **Timestamp:** `20250619T034308.416112Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Dual-Jurisdiction Patent Filing – AU + US Provisional (AI-Human Synergy™)`
- **LLM Used:** `LLM1 and LLM4`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Provisional patents filed in Australia (2025902482) and United States (63/826,381) for Sentinel Protocol's audit engine and ethics enforcement system. Filed without legal representation under Telles Investments Pty Ltd. Documents logged and timestamped; PCT meta-seal and international planning to follow within 12-month window.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-06-19T03:43:08.415969Z",
        "event": "PATENT_PROVISIONAL_FILED_DUAL_JURISDICTION",
        "meta_id": "MVP1-SR035",
        "input": {
            "command": "Execute self-filed provisional patents in AU and US",
            "jurisdictions": [
                "Australia",
                "United States"
            ],
            "AU_application_number": "2025902482",
            "US_application_number": "63/826,381",
            "priority_date": "17 June 2025",
            "filing_dates": {
                "AU": "17 June 2025",
                "US": "19 June 2025"
            },
            "ownership": "Telles Investments Pty Ltd",
            "inventor": "Dr. Fernando Telles",
            "title": "System and Method for Mandatory Human-Supervised AI-Human
Synergy\u2122 Audit Logging Using Multi-Layer Blockchain Anchoring, Cryptographic
Chain Validation, and Real-Time Ethics Enforcement",
            "description": "Milestone logs the global patent pending activation of
Sentinel Protocol\u2019s audit engine under AI-Human Synergy governance. AU and US
provisional filings were completed without legal representation, securing CDA AI's
technical claims under open timestamp and dual-hash audit validation logic.",
            "documents_logged": [
                "Patent_Filing_Record_SentinelProtocol.md",
                "IP Australia Filing Receipt \u2013 AMCZ-2514625185.pdf",
                "2025902482-Provisional Patent Application Filing Receipt.pdf",
                "N417.pdf",
                "N417.PYMT.pdf"
            ]
        },
        "output": {
            "status": "Patent Pending status active in AU and US. Global disclosure
now protected.",
            "next_step": "OP_Return and Ordinal insription meta-seal and PCT
planning window (within 12 months)."
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1 and LLM4",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  b826ea7480c0af926b2465cee590868721ccff38469561fd24983d7468e99820
- **RIPEMD160 (.2ha):** 41d5a18e1da9df37d37a2faeaa62f7c1e32939b7

OTS Validation

- **File:** `audit_log_MVP1-SR035_20250619T034308.416112Z.hash.ots`
- **SHA256:** `89dad8fb1cb018f5c56f12b03966e0af734c52646a8b6fe53742a7f46ec18b5c`
- **Bitcoin TXID:**
  `95035d9b4f6be51cf1827dd832bb630a451b2fc75a29d6740f78cd5b893a43f5`
- **Bitcoin Block:** `901853`
- **Date of Existence:** `2025-06-19 AEST`
- **Merkle Root:** `fbe8b73084e28e8698601adfd4aa0220eef270b6e03937b6cea66f1732cbdbfd`

Audit Record:

- **File Name:** `audit_log_MVP1-SR036_20250623T041519.661578Z.json`
- **meta_id:** `MVP1-SR036`
- **Timestamp:** `20250623T041519.661578Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `OP_RETURN Anchor Verification – MVP1-SR033 Patent Log`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Anchor verification of MVP1-SR033 patent hash confirmed on Bitcoin`
  `mainnet at block 901599.`
  `TXID` 964e6b06... `and RIPEMD160 digest matched expected`
  `payload.` opreturnanchor.py v11 `validated as reproducible and protocol-compliant`
  `for future audit sealing.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-23T04:15:19.661513Z",
        "event": "MVP1_HASH_ANCHOR_VERIFIED",
        "meta_id": "MVP1-SR036",
        "input": {
            "meta_id": "MVP1-SR033",
            "script_used": "opreturnanchor.py v11",
            "anchor_file": "audit_log_MVP1-SR033_20250617T070522.437324Z.json",
            "sha256":
"f6064036d3fa3d1801d865153c90f6f9705575656067b42d48f43799b606c08d",
            "ripemd160": "c08f096354d7a3c81dceb104f43bc5b40a31e58d",
            "op_return_txid":
"964e6b06a207363be59e853bedbd1dddf21ba5d881b8d7d1a5e4e8e383c7bc48",
            "block_height": 901599,
            "payload_verified": "SENTINEL|MVP1-SR033|
c08f096354d7a3c81dceb104f43bc5b40a31e58d"
        },
        "output": {
            "status": "\u2713 Anchor log validated. Block height match verified on-
chain.",
            "next_step": "Implement canonicalized OP_RETURN Payload Format \u2014
SENTINEL|<meta_id>|<RIPEMD160(SHA256(input_file))>",
            "notes": "Script now confirmed functional and reproducible across audit
targets."
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `2645acbe3186171d9355517ae93140fe9404d68884176817a21b7c55a600b0c0`
- **RIPEMD160 (.2ha):** `9f5bce4a8eaa8bf7c88ff6a1a30f7f3c5b75aaf5`

OTS Validation

- **File:** `audit_log_MVP1-SR036_20250623T041519.661578Z.hash.ots`
- **SHA256:** `def6035e2e89785e31d62e96b633d94e26ba847a6692141d2de21aa9b89a5ee8`
- **Bitcoin TXID:**
  `ee6cf0b50081d5637a2ac2d714d0b60ff4b4bed6cba215d688dfc2f9deb47d00`
- **Bitcoin Block:** `902382`
- **Date of Existence:** `2025-06-23 AEST`
- **Merkle Root:** `b09d8459f99501ecbccf6024423ea574a24738cdc1707ddcd8d0570778e06504`

Audit Record:

- **File Name:** `audit_log_MVP1-SR038_20250623T050153.592411Z.json`
- **meta_id:** `MVP1-SR038`
- **Timestamp:** `20250623T050153.592411Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Compliance Firewall Test – CEM Rules 1-3 Validation`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `This log captures the first full compliance firewall test of` Sentinel Protocol v3.0 using ComplianceEnforcer.py and AuditLogger.py . `Rules 1-3 of the Compliance Enforcement Matrix (CEM) were intentionally triggered—covering missing human verification, AI override without timestamp, and hallucinated output. All violations were successfully detected.` .2ha and .ots `generation was suppressed as designed, validating enforcement logic under ABSOLUTE MODE.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-23T04:56:23.508557Z",
        "event": "MVP1_CEM_FIREWALL_TEST",
        "meta_id": "MVP1-SR038",
        "input": {
            "description": "Test of compliance rule enforcement logic",
            "module": "AuditLogger.py v1.3",
            "test_type": "violation_trigger",
            "rule_triggered": "Rule 1 \u2013 human_verified == False"
        },
        "output": {
            "status": "verifiable",
            "sha256":
"abcdef1234567890abcdef1234567890abcdef1234567890abcdef1234567890",
            "payload": "SENTINEL|MVP1-TEST|abcdef90"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": false,
            "module_version": "v1.0.0"
        }
    },
    {
        "timestamp": "2025-06-23T04:57:49.239817Z",
        "event": "MVP1_CEM_RULE2_TEST",
        "meta_id": "MVP1-SR038",
        "input": {
            "description": "Trigger Rule 2: AI override with no timestamp
confirmation",
            "module": "AuditLogger.py v1.3",
            "test_type": "violation_trigger",
            "AI_override": true
        },
        "output": {
            "status": "verifiable",
            "sha256":
"aabbccddeeff00112233445566778899aabbccddeeff00112233445566778899",
            "payload": "SENTINEL|MVP1-RULE2|8899aabb"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    },
    {
        "timestamp": "2025-06-23T04:59:09.273352Z",
        "event": "MVP1_CEM_RULE3_TEST",
        "meta_id": "MVP1-SR038",
        "input": {
            "description": "Trigger Rule 3: Hallucinated output",
            "module": "AuditLogger.py v1.3",
            "test_type": "violation_trigger"
        },
```

```
        "output": {
            "status": "hallucinated",
            "sha256":
"ffeeddccbbaa99887766554433221100ffeeddccbbaa99887766554433221100",
            "payload": "SENTINEL|MVP1-RULE3|211000ff"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    },
    {
        "timestamp": "2025-06-23T05:01:41.426009Z",
        "event": "MVP1_CEM_RULE2_TEST",
        "meta_id": "MVP1-SR038",
        "input": {
            "description": "Trigger Rule 2: AI override with no timestamp
confirmation",
            "module": "AuditLogger.py v1.3",
            "test_type": "violation_trigger",
            "AI_override": true
        },
        "output": {
            "status": "verifiable",
            "sha256":
"aabbccddeeff00112233445566778899aabbccddeeff00112233445566778899",
            "payload": "SENTINEL|MVP1-RULE2|8899aabb"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
        }
    },
    {
        "timestamp": "2025-06-23T05:01:53.592242Z",
        "event": "MVP1_CEM_RULE3_TEST",
        "meta_id": "MVP1-SR038",
        "input": {
            "description": "Trigger Rule 3: Hallucinated output",
            "module": "AuditLogger.py v1.3",
            "test_type": "violation_trigger"
        },
        "output": {
            "status": "hallucinated",
            "sha256":
"ffeeddccbbaa99887766554433221100ffeeddccbbaa99887766554433221100",
            "payload": "SENTINEL|MVP1-RULE3|211000ff"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0"
```

```
        }
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `d09370d69bf997cf8b6f64316945c18e299a5f0d3e125ecf3c6a826de1e6b08e`
- **RIPEMD160 (.2ha):** `GENERATION BLOCKED BY FIREWALL`

OTS Validation

- **File:** `GENERATION BLOCKED BY FIREWALL`

Audit Record:

- **File Name:** `audit_log_MVP1-SR041_20250623T051610.180783Z.json`
- **meta_id:** `MVP1-SR041`
- **Timestamp:** `20250623T051610.180783Z`
- **Classification:** `PROTOCOL_FIX`
- **Subcategory:** `Compliance Enforcement Matrix deployment`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `This log captures the first full compliance firewall test of the Sentinel Protocol v3.0 using ComplianceEnforcer.py and AuditLogger.py. It systematically triggers violations of Rules 1-3 within the Compliance Enforcement Matrix (CEM): lack of human verification, unauthorized AI override without timestamp confirmation, and hallucinated output. All violations were correctly flagged, and` .2ha `and` .ots `generation were intentionally suppressed under enforcement logic. Rule 4 was also validated, successfully blocking unauthorized` .json `generation due to output hash mismatch between` sha256[:8] `and the payload suffix. This entry confirms real-time firewall behavior for audit integrity and marks the operational readiness of the Sentinel Protocol's runtime compliance infrastructure.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-23T05:16:10.180614Z",
        "event": "MVP1_COMPLIANCE_ENFORCER_DEPLOYED",
        "meta_id": "MVP1-SR041",
        "input": {
            "description": "Deployment of ComplianceEnforcer.py under CEM Matrix",
            "module": "AuditLogger.py v8",
            "feature": "CEM auto-firewall with 4 enforced rules",
            "integration": "Embedded in finalize_session()",
            "test_status": "Rule 1\u20134 tested, violations correctly blocked"
        },
        "output": {
            "status": "Internal integration confirmed",
            "verifiable": true,
            "notes": "No payload/OP_RETURN used for this log"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `c182b624ed099ce726e19885a47bc0a5ad1a5a6c8bd54a59432bcbd15721a46b`
- **RIPEMD160 (.2ha):** `a101491e263972a2151dbf826b8e07a79be78feb`

OTS Validation

- **File:** `audit_log_MVP1-SR041_20250623T051610.180783Z.hash.ots`
- **SHA256:** `ecb77fd207456b6925ee96ed596bf6eca04154712d6a13f919c2b14cea522d52`
- **Bitcoin TXID:**
  `15a6b4cd0ae8fff8d756208e4cfb2a8d85b68cce341534f934bf82baee133a3a`
- **Bitcoin Block:** `902391`
- **Date of Existence:** `2025-06-23 AEST`
- **Merkle Root:** `adcf8d32cb19ca4f9893c3d3d296841bd855c30e026b1f67e8fa403359eb2d1f`

Audit Record:

- **File Name:** `audit_log_MVP1-SR047_20250624T061128.502561Z.json`
- **meta_id:** `MVP1-SR047`
- **Timestamp:** `20250624T061128.502561Z`
- **Classification:** `INFRASTRUCTURE_LOG`

- **Subcategory:** `Session Log Anchor – OP_RETURN Confirmation (MVP1-SESS001)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Session log for MVP1-SESS001 successfully anchored to Bitcoin mainnet via OP_RETURN.`
  `TXID` bd7a9083... `confirmed in block 902485 with RIPEMD160 payload hash. Anchor manifest generated. Confirms immutability and audit validity of full-session execution under Sentinel Protocol v3.0.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-06-24T06:11:28.502428Z",
        "event": "MVP1_SESSION_ANCHOR_TX_CONFIRMED",
        "meta_id": "MVP1-SR047",
        "input": {
            "session_meta_id": "MVP1-SESS001",
            "log_file": "session_log_MVP1-SESS001_20250624T034016.022526Z.json",
            "sha256":
"f237f7f6f02f6afd5802a8a7ed636622a8e37b4a0d58c95e467add74f6b0dad6",
            "ripemd160": "f7d6d022a9d64028e489efe914242301e3962bba",
            "op_return_txid":
"bd7a9083ca4e3d344e954b6b1fb103f5e60ac991b3b899dea128ac8f5b21b5d3",
            "block_height": 902485,
            "anchor_payload": "SENTINEL|MVP1-SESS001|
f7d6d022a9d64028e489efe914242301e3962bba"
        },
        "output": {
            "status": "verifiable",
            "verifiable": true,
            "anchor_manifest": "anchor_log_MVP1-SESS001_20250624T053815.065023Z.json"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `71951681c0874cf6c600228d76127f21a0e811d36e35376d7a435ca4b699ec9b`
- **RIPEMD160 (.2ha):** `c6761465c46f6466c2d0bc594dedbb6acf2a04d5`

OTS Validation

- **File:** `audit_log_MVP1-SR047_20250624T061128.502561Z.hash.ots`
- **SHA256:** `0c3f25074ce7462a1e1d50329db6453657c978fd1562c7a67eb69429f348b69e`
- **Bitcoin TXID:**
  `15f134bc87f76537b4e78be4fbd3f230caf4884b2c4719066b5afe76fda97228`
- **Bitcoin Block:** `902502`
- **Date of Existence:** `2025-06-24 AEST`
- **Merkle Root:** `e6c5edb18d3b34bf45c183f5be0f27e21267e29401c7a1d67d15041443ea9f14`

Audit Record:

- **File Name:** `audit_log_MVP1-SR057_20250701T022809.888350Z.json`
- **meta_id:** `MVP1-SR057`
- **Timestamp:** `20250701T022809.888350Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Immutability Log – SHA256 Verification Correction (CEM-2.5)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `false`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Audit confirms successful detection and correction of prior hash mismatch via live execution of HashValidatorBlock.py.` `File` MVP2*Hash*HumanVerificationCorrection.md `verified against SHA256, RIPEMD160, and OpenTimestamps proofs. Immutable status confirmed under Sentinel Protocol CEM-2.5 compliance.`
- **File Contents:**

```
[
    {
        "timestamp": "2025-07-01T02:28:09.888202Z",
        "event": "AUDIT_FILE_IMMUTABILITY_LOGGED",
        "meta_id": "MVP1-SR057",
        "input": {
            "document_title": "MVP2 \u2013 Hash Verification Correction
(AI\u2013Human Compliance Test)",
            "filename": "MVP2_Hash_HumanVerificationCorrection.md",
            "evidence_path": "evidence_files/
MVP2_Hash_HumanVerificationCorrection.md",
            "sha256_file": "evidence_files/
MVP2_Hash_HumanVerificationCorrection.md.hash",
            "ripemd160_file": "evidence_files/
MVP2_Hash_HumanVerificationCorrection.md.2ha",
            "ots_file": "evidence_files/
MVP2_Hash_HumanVerificationCorrection.md.hash.ots",
            "validation_step": "This audit confirms the successful detection and
correction of a prior SHA256 mismatch. The HashValidatorBlock.py was executed live.
Integrity check validated against source file, disk hash, and RIPEMD160 fingerprint.
Timestamped via OpenTimestamps. \u2705 All immutability guarantees enforced under
Sentinel Protocol CEM-2.5."
        },
        "output": {
            "status": "verifiable",
            "verifiable": true,
            "sha256":
"d644c2e4b160b23e3738270264a91025476069ef39ff505752f6a6e3582b48a0",
            "ripemd160": "dd41b24829185a43ed30a2801d388cbc68e2710e"
        },
        "audit": {
            "AI_used": false,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `b5a8ee489d98da2f8e3bcc07cd664e0f1969e636e3f59d9449e192c092cde484`
- **RIPEMD160 (.2ha):** `c9ab3c42f82dbf355a96080b9760953e72cb9436`

OTS Validation

- **File:** `audit_log_MVP1-SR057_20250701T022809.888350Z.hash.ots`
- **SHA256:** `4629ef82ec0132a9ce8ea69ac411ab7c382a9905bbb8eb7c873a8451aef4791c`
- **Bitcoin TXID:**
  `37ede648e403c71db61c0774922593836aa5fdda097fe2c5c0834e345428aee2`
- **Bitcoin Block:** `903472`

- **Date of Existence:** `2025-07-01 AES`
- **Merkle Root:** `5ece4b93fb6f94421def12b9ce377b88c5713be31ec806659bb92dee4f15b4cb`

Audit Record:

- **File Name:** `audit_log_MVP1-SR058_20250701T024226.076182Z.json`
- **meta_id:** `MVP1-SR058`
- **Timestamp:** `20250701T024226.076182Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Evidence Hash Verification – Validator Module Integration`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `false`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Validator module successfully verified integrity of` Evidence Hash Validator Integration Log.md `across SHA256, RIPEMD160, and OTS layers. Execution confirms functional correctness` of HashValidatorBlock.py `with full immutability guarantees under Sentinel Protocol.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-01T02:42:26.076010Z",
        "event": "EVIDENCE_HASH_VERIFICATION_LOGGED",
        "meta_id": "MVP1-SR058",
        "input": {
            "document_title": "Evidence Hash Validator Integration Log",
            "filename": "Evidence Hash Validator Integration Log.md",
            "evidence_path": "evidence_files/Evidence Hash Validator Integration
Log.md",
            "sha256_file": "evidence_files/Evidence Hash Validator Integration
Log.md.hash",
            "ripemd160_file": "evidence_files/Evidence Hash Validator Integration
Log.md.2ha",
            "ots_file": "evidence_files/Evidence Hash Validator Integration
Log.md.hash.ots",
            "validation_step": "HashValidatorBlock.py validated all hash layers
successfully. Evidence file confirmed against SHA256 and RIPEMD160 with OTS
verification. Execution confirms functional integrity of the entire validator
module."
        },
        "output": {
            "status": "verifiable",
            "verifiable": true,
            "sha256":
"ce473a4bf754ea7bcfc4745c8f2b7dce60d22a0f674598abd489086d0fa420ca",
            "ripemd160": "f2ad5d9748441ec1358609d0e75cf55cc46f6f7e"
        },
        "audit": {
            "AI_used": false,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `c1eeb6398bed4f8c22918ba2a4d210f6184e49fa8fca6a9d4516c0a3c998a33d`
- **RIPEMD160 (.2ha):** `cc977e74eac608bda1beb280f4b04b918c1bb7e1`

OTS Validation

- **File:** `audit_log_MVP1-SR058_20250701T024226.076182Z.hash.ots`
- **SHA256:** `3ca47c0216a6419b296a46d4bb34c49711c2e4fe1258b6950e7916194cff0018`
- **Bitcoin TXID:**
  `37ede648e403c71db61c0774922593836aa5fdda097fe2c5c0834e345428aee2`
- **Bitcoin Block:** `903472`
- **Date of Existence:** `2025-07-01 AEST`

- **Merkle Root:** `5ece4b93fb6f94421def12b9ce377b88c5713be31ec806659bb92dee4f15b4cb`

Audit Record:

- **File Name:** `audit_log_MVP1-SR076_20250701T224228.412884Z.json`
- **meta_id:** `MVP1-SR076`
- **Timestamp:** `20250701T224228.412884Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Session Anchor Log – Bitcoin OP_RETURN Confirmation (MVP1-SESS009)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `false`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Session log` MVP1-SESS009 `anchored to Bitcoin block 903503 via OP_RETURN. TXID` c555b886... `confirmed with SHA256 and RIPEMD160 hash (` fde70f38... `) verified. Confirms cryptographic sealing of session execution with timestamp immutability under Sentinel Protocol v3.0.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-01T22:42:28.412740Z",
        "event": "ANCHOR_TX_LOGGED",
        "meta_id": "MVP1-SR076",
        "input": {
            "meta_id": "MVP1-SESS009",
            "txid":
"c555b886ac68b530a6220aa66298dc8c02d5a2eaa84d0a1b66610c0a2ae15ae3",
            "payload": "SENTINEL|MVP1-SESS009|
fde70f380a138c7fd76f5cf77e2b2e6db3dd606a",
            "block_height": 903503,
            "anchored_file": "session_log_MVP1-SESS009_20250701T052603.401928Z.json",
            "sha256":
"85b6ad393cc9ccf86ea7e9e3e794185fc197060143dd7c5d297ea5f8d2b3480f",
            "ripemd160": "fde70f380a138c7fd76f5cf77e2b2e6db3dd606a"
        },
        "output": {
            "confirmed": true,
            "verifiable": true,
            "btc_block_height": 903503
        },
        "audit": {
            "AI_used": false,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):** `cf46ee3f32b5a7e8c862257d80c7c562a125dbd5`
- **RIPEMD160 (.2ha):**
  `a576b9d16f783ce2ded9d8f8b26858624efec849f2e62d5449703b75b530ccbc`

OTS Validation

- **File:** `audit_log_MVP1-SR076_20250701T224228.412884Z.hash.ots`
- **SHA256:** `9981aaf1d35c2d9669ddedd095377ea93ef9525c55bd12507609b550d2eddb5c`
- **Bitcoin TXID:**
  `eef76cfc072d41dc16e936d7d2974ccf6bc1c41ac236a9a42ea03ead04b25ea0`
- **Bitcoin Block:** `903585`
- **Date of Existence:** `2025-07-02 AEST`
- **Merkle Root:** `8be9df9eed22bcaf0dae6f2648cce264f31e058ead631d2dfc1507e2ab44f3d0`

Audit Record:

- **File Name:** `audit_log_MVP1-SR083_20250704T043256.725227Z.json`
- **meta_id:** `MVP1-SR083`
- **Timestamp:** `20250704T043256.725227Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Hash Protection Layer Activation – Immutable View-Only Hash Vault`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `New deterministic hash protection layer activated under AuditLogger.py v9 to prevent manual corruption. All` .json `,` .hash `and` .2ha `files were initially cloned into` frozen_hashes/ `as locked, view-only artifacts.` ⚠️ `Note: early version saved` .2ha `files with non-canonical suffix` .json.2ha `, which was corrected in subsequent releases.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-04T04:32:56.725077Z",
        "event": "MVP1_HASH_PROTECTION_LAYER_ACTIVATED",
        "meta_id": "MVP1-SR083",
        "input": {
            "description": "Activation of new deterministic hash protection
mechanism",
            "module": "AuditLogger.py v9",
            "trigger": "Reproducibility failure observed due to human access
corruption",
            "audit_reference": "AUDIT_Reproducibility_sha256_ripemd160.md",
            "problem_detected": "RIPEMD160 and SHA256 corruption risk identified, due
to manual file opening using legacy apps",
            "protective_measure": "All future `.hash`, `.2ha`, and `.hash.ots` files
are now saved into a `frozen_hashes/` directory as locked view-only copies. Any
viewing or audit operations are directed to that folder. Original hashes remain
untouched in `logs/`, ensuring immutable root state.",
            "system_behavior": "When hash files are created, a locked copy is
automatically created and referenced for downstream viewing.",
            "enforcement_scope": "MVP-1 and MVP-2 sessions using `AuditLogger.py
v9+`"
        },
        "output": {
            "status": "Hash protection protocol enforced across session logger and
audit logger stack",
            "compliance_matrix": [
                "CEM_RULE_4",
                "VALIS_HASH_LOCK v1.0"
            ],
            "next_step": "Retrospective hash replay audit (optional) to validate no
further corruption"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `7da768d4a179e7ef60202baea2551916fcccff5288f1192f02cdaa3b196c87f2`
- **RIPEMD160 (.2ha):** `f8da811e8e692f60a4226162cf45ddd0c20b958d`

OTS Validation

- **File:** `audit_log_MVP1-SR083_20250704T043256.725227Z.json.hash.ots`
- **SHA256:** `6199051784e3803e619ef604802bdcfb913b958bca45a391cc25358f34da53c2`

- **Bitcoin TXID:**
  `bfaea03a0620c498faa87d3e42241d0ffb4bec94768644ee2cc08bf519b18bc1`
- **Bitcoin Block:** `903925`
- **Date of Existence:** `2025-07-04 AEST`
- **Merkle Root:** `cba5078e957e8594665d8ee6aa78e2bff8dd9f2ad561c99d00388fd4b52c3e47`

Audit Record:

- **File Name:** `audit_log_MVP1-SR084_20250704T044646.267182Z.json`
- **meta_id:** `MVP1-SR084`
- **Timestamp:** `20250704T044646.267182Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Immutable Flag Activation – OS-Level Locking for Hash Artifacts`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `OS-level immutability (` chflags uchg `) applied` `to` .json `,` .hash `and` .2ha `files via AuditLogger.py v9. All frozen hash artifacts` `now stored in` frozen_sources/ `with tamper-proof enforcement.` ⚠ `Note: this early test log still used the non-` `canonical` .json.2ha `naming format for RIPEMD160 outputs, which was corrected in` `later versions. Immutable lock prevents editing or deletion unless explicitly` `overridden. Enforces VALIS_HASH_LOCK_OSIMMUTABLE_v1.0 and CEM_RULE_4 under` `Sentinel Protocol audit hardening.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-04T04:46:46.266961Z",
        "event": "MVP1_HASH_IMMUTABLE_FLAG_ACTIVATED",
        "meta_id": "MVP1-SR084",
        "input": {
            "description": "Activation of immutable OS-level protection on critical
hash files (.hash, .2ha, .hash.ots)",
            "module": "AuditLogger.py v9",
            "patch_notes": "Inserted `chflags uchg` system call post-write to lock
all frozen hash copies from modification, deletion, or overwrite.",
            "frozen_folder": "logs/frozen_sources/",
            "enforcement_scope": "All `.hash`, `.2ha`, and `.hash.ots` files
generated by AuditLogger are now duplicated and locked within `frozen_sources/`.",
            "audit_protection_mode": "VALIS_HASH_LOCK_OSIMMUTABLE_v1.0",
            "testing_status": "Live test pending at time of this log \u2013 will
attempt edit to verify lock integrity.",
            "tamper_proofing_policy": "Immutable files cannot be opened, edited, or
deleted without manual override (`chflags nouchg`).",
            "applies_to": "macOS systems \u2013 MVP-1 and MVP-2 session logs using
AuditLogger.py v9+"
        },
        "output": {
            "status": "Immutable protection logic applied during hash finalization
step",
            "next_step": "Manually verify that locked files in `frozen_sources/`
cannot be altered by VS Code or other editors",
            "compliance_matrix": [
                "CEM_RULE_4",
                "VALIS_HASH_LOCK_OSIMMUTABLE_v1.0",
                "MVP2.5\u2013AuditLayer-HARDENED"
            ]
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `f81ed61f5c3f785c21ab7b49883e4f36a74229a540daeb188fd06346064ea0f6`
- **RIPEMD160 (.2ha):** `cd4b6007b1138e4ab553a332d77bd7eaa415fac7`

OTS Validation

- **File:** `audit_log_MVP1-SR084_20250704T044646.267182Z.json.hash.ots`
- **SHA256:** `9c1950df15381d53ef798f6a5f0c746efcf1c5f2e6e4cb2d8423ca4cfe1b55fc`

- **Bitcoin TXID:**
  `bfaea03a0620c498faa87d3e42241d0ffb4bec94768644ee2cc08bf519b18bc1`
- **Bitcoin Block:** `903925`
- **Date of Existence:** `2025-07-04 AEST`
- **Merkle Root:** `cba5078e957e8594665d8ee6aa78e2bff8dd9f2ad561c99d00388fd4b52c3e47`

Audit Record:

- **File Name:** `audit_log_MVP1-SR001_20250704T045719.461011Z.json`
- **meta_id:** `MVP1-SR001`
- **version_tag:** `optimisation_v2`
- **Timestamp:** `20250704T045719.461011Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Immutable Flag Activation – Optimisation Hash Layer Lock (AuditLogger v9)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Immutable flag (` chflags uchg `) activated at OS level for` .hash `,` .2ha `, and` .ots `files under AuditLogger.py v9. Files were initially duplicated into` frozen_sources/ `as view-only, tamper-proof assets.` ⚠ `Early test used non-canonical` .json.2ha `RIPEMD160 filename format — corrected in later versions. Entry marks the first implementation of VALIS_HASH_LOCK_OSIMMUTABLE_v1.0 under CEM_RULE_4 for Optimisation_MVP1 audit infrastructure.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-04T04:57:19.460877Z",
        "event": "MVP1_HASH_IMMUTABLE_FLAG_ACTIVATED",
        "meta_id": "MVP1-SR001",
        "input": {
            "description": "Activation of immutable OS-level protection on critical
hash files (.hash, .2ha, .hash.ots)",
            "module": "AuditLogger.py v9",
            "patch_notes": "Inserted `chflags uchg` system call post-write to lock
all frozen hash copies from modification, deletion, or overwrite.",
            "frozen_folder": "logs/frozen_sources/",
            "enforcement_scope": "All `.hash`, `.2ha`, and `.hash.ots` files
generated by AuditLogger are now duplicated and locked within `frozen_sources/`.",
            "audit_protection_mode": "VALIS_HASH_LOCK_OSIMMUTABLE_v1.0",
            "testing_status": "Live test pending at time of this log \u2013 will
attempt edit to verify lock integrity.",
            "tamper_proofing_policy": "Immutable files cannot be opened, edited, or
deleted without manual override (`chflags nouchg`).",
            "applies_to": "macOS systems \u2013 MVP-1 and MVP-2 session logs using
AuditLogger.py v9+"
        },
        "output": {
            "status": "Immutable protection logic applied during hash finalization
step",
            "next_step": "Manually verify that locked files in `frozen_sources/`
cannot be altered by VS Code or other editors",
            "compliance_matrix": [
                "CEM_RULE_4",
                "VALIS_HASH_LOCK_OSIMMUTABLE_v1.0",
                "MVP2.5\u2013AuditLayer-HARDENED"
            ]
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `9f02c95237408215adf63860b7cf7cf1e6c304132e1daf25e3a9b6719a1b55b0`
- **RIPEMD160 (.2ha):** `43fcfe1865d8b9a517f3725eeb7bc09ae06cd817`

OTS Validation

- **File:** `audit_log_MVP1-SR001_20250704T045719.461011Z.json.hash.ots`
- **SHA256:** `c0d951b67c73ceb56332a98cd6e3b05a2ea5a47b5ef5fe70e64e4ce5b48f8e10`

- **Bitcoin TXID:**
  `6cbfe13d83657c7753540c8bb175248c9592ac5cf8d14b1966c5a87d0d47c20a`
- **Bitcoin Block:** `903926`
- **Date of Existence:** `2025-07-04 AEST`
- **Merkle Root:** `87676f0f641455927811d5809d4927c4c58605f930c361c303f8b684a479122e`

Audit Record:

- **File Name:** `audit_log_MVP1-SR002_20250704T050511.217387Z.json`
- **meta_id:** `MVP1-SR002`
- **version_tag:** `optimisation_v2`
- **Timestamp:** `20250704T050511.217387Z`
- **Classification:** `INFRASTRUCTURE_LOG`
- **Subcategory:** `Frozen Hash Lock Confirmation – Local Immutable Test (AuditLogger v9)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Confirmed functional enforcement of immutable hash duplication` under AuditLogger.py v9 `. .json` `, .hash` and .2ha `files locked in` frozen_sources/ `using` chflags uchg `. Manual edit attempt blocked in VS Code.` ⚠️ `Note: this log was generated during a transitional phase where RIPEMD160 output files used a non-canonical` .json.2ha `suffix — corrected in later versions.` 🔒 `Log captures the first local execution proof of Sentinel Protocol's VALIS_HASH_LOCK_OSIMMUTABLE enforcement in non-cloud environment. Supersedes legacy version of SR002.`
- **File Contents:**

```json
[
    {
        "timestamp": "2025-07-04T05:05:11.217180Z",
        "event": "MVP1_FROZEN_IMMUTABILITY_CONFIRMED",
        "meta_id": "MVP1-SR002",
        "input": {
            "description": "Sentinel Protocol hash firewall confirmed functional in
non-cloud local execution.",
            "session_directory": "/Users/rosmontos/
MVP-01_Auditability_And_Provenance/logs",
            "frozen_copy_directory": "/Users/rosmontos/
MVP-01_Auditability_And_Provenance/logs/frozen_sources",
            "protection_mechanism": "All `.hash`, `.2ha`, `.hash.ots` files now
duplicated with immutable `chflags uchg` protection in `frozen_sources`.",
            "test_method": "Manual overwrite attempt of `.hash` file under VS Code
failed with permission lockout. Confirmed by read-only error prompt.",
            "enforcement_scope": "All Sentinel audit logs (MVP-1/MVP-2) using
`AuditLogger.py v9+`",
            "mode": "Non-cloud, isolated, reproducibility assured"
        },
        "output": {
            "status": "Immutable protection of audit trail files confirmed",
            "next_step": "Backport to `SessionLogger.py` and enable optional hash
freeze on `.pdf` or `.md` outputs"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v1.0.0",
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `46ca27edad733ab6c8da3c2d5a7b00cbadd1e5261404ee1d62ebb04598ba6ef8`
- **RIPEMD160 (.2ha):** `20c8fde7b7186c87170c2848d59aa40bda803a03`

OTS Validation

- **File:** `audit_log_MVP1-SR002_20250704T050511.217387Z.json.hash.ots`
- **SHA256:** `4764eee080c1b0cf208239a556106cdce73325502f6e687b4c88313adb445c6a`
- **Bitcoin TXID:**
  `284b147da75b74fcc323b26a0a5248f2d92e23e8391164d765b78101f5aabb87`
- **Bitcoin Block:** `903932`
- **Date of Existence:** `2025-07-04 AEST`
- **Merkle Root:** `c7500bd6ae15376c5bdf1e074770ac98f2fba51980cb5490f660530c7ddc23dc`

Audit Record:

- **File Name:** `session_log_OPTMZ-SESS005_20250709T025037.058926Z.json`
- **meta_id:** `OPTMZ-SESS005`
- **Timestamp:** `20250709T025037.058926Z`
- **Classification:** `SESSION_LOG`
- **Subcategory:** `CME Violation Regression Test – AuditLogger v.july09.25 Validation`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Final session log capturing successful revalidation of all CME Rules 1-6 after patching` AuditLogger.py `and` SessionLogger.py `in Optimisation02_MVP1. Includes live test entries for missing human verification, AI override, hallucinated outputs, hash-payload mismatches, and VALIS enforcement toggles. Confirms that` .2ha `format, log structure, and enforcement stack now operate as designed under compliance firewall.`
- **File Contents:**

```
{
    "session_meta_id": "OPTMZ-SESS005",
    "timestamp": "20250709T025037.058926Z",
    "compiled_logs": [
        {
            "file": "audit_log_OPTMZ2-SR002_20250709T024354.995694Z.json",
            "meta_id": "OPTMZ2-SR002",
            "timestamp": "20250709T024354.995694Z",
            "entries": [
                {
                    "timestamp": "2025-07-09T02:43:54.995636Z",
                    "event": "TEST_RULE_1_VIOLATION",
                    "meta_id": "OPTMZ2-SR002",
                    "input": {
                        "description": "Missing human_verified flag"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "sha256": "abc123",
                        "ripemd160": "def456"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": false,
                        "module_version": "v.july09.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true
                    }
                }
            ],
            "2ha": null
        },
        {
            "file": "audit_log_OPTMZ2-SR003_20250709T024504.947877Z.json",
            "meta_id": "OPTMZ2-SR003",
            "timestamp": "20250709T024504.947877Z",
            "entries": [
                {
                    "timestamp": "2025-07-09T02:45:04.947744Z",
                    "event": "TEST_RULE_2_VIOLATION",
                    "meta_id": "OPTMZ2-SR003",
                    "input": {
                        "description": "AI override without timestamp"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "sha256": "abc123",
                        "ripemd160": "def456"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july09.25",
```

```
                "ai_editor_LLM_human_agreement": true,
                "VALIS_template_enforced": true,
                "AI_override": true
            },
            "timestamp_confirmed": false
        }
    ],
    "2ha": null
},
{
    "file": "audit_log_OPTMZ2-SR004_20250709T024603.707907Z.json",
    "meta_id": "OPTMZ2-SR004",
    "timestamp": "20250709T024603.707907Z",
    "entries": [
        {
            "timestamp": "2025-07-09T02:46:03.707811Z",
            "event": "TEST_RULE_3_VIOLATION",
            "meta_id": "OPTMZ2-SR004",
            "input": {
                "description": "Output unverifiable"
            },
            "output": {
                "status": "operational",
                "verifiable": false,
                "sha256": null,
                "ripemd160": null
            },
            "audit": {
                "AI_used": true,
                "LLM_used": "LLM1",
                "human_verified": true,
                "module_version": "v.july09.25",
                "ai_editor_LLM_human_agreement": true,
                "VALIS_template_enforced": true
            }
        }
    ],
    "2ha": null
},
{
    "file": "audit_log_OPTMZ2-SR005_20250709T024706.145863Z.json",
    "meta_id": "OPTMZ2-SR005",
    "timestamp": "20250709T024706.145863Z",
    "entries": [
        {
            "timestamp": "2025-07-09T02:47:06.145776Z",
            "event": "TEST_RULE_4_VIOLATION",
            "meta_id": "OPTMZ2-SR005",
            "input": {
                "description": "Payload-hash mismatch"
            },
            "output": {
                "status": "verifiable",
                "verifiable": true,
                "sha256": "abc123456789",
                "ripemd160": "def456",
                "payload": "CDA|0011223344...deadbeef"
```

```
            },
            "audit": {
                "AI_used": true,
                "LLM_used": "LLM1",
                "human_verified": true,
                "module_version": "v.july09.25",
                "ai_editor_LLM_human_agreement": true,
                "VALIS_template_enforced": true
            }
        }
    ],
    "2ha": null
},
{
    "file": "audit_log_OPTMZ2-SR006_20250709T024728.071395Z.json",
    "meta_id": "OPTMZ2-SR006",
    "timestamp": "20250709T024728.071395Z",
    "entries": [
        {
            "timestamp": "2025-07-09T02:47:28.071324Z",
            "event": "TEST_RULE_5_VIOLATION",
            "meta_id": "OPTMZ2-SR006",
            "input": {
                "description": "No AI-human agreement flag"
            },
            "output": {
                "status": "verifiable",
                "verifiable": true,
                "sha256": "abc123",
                "ripemd160": "def456"
            },
            "audit": {
                "AI_used": true,
                "LLM_used": "LLM1",
                "human_verified": true,
                "module_version": "v.july09.25",
                "ai_editor_LLM_human_agreement": false,
                "VALIS_template_enforced": true
            }
        }
    ],
    "2ha": null
},
{
    "file": "audit_log_OPTMZ2-SR007_20250709T024750.348303Z.json",
    "meta_id": "OPTMZ2-SR007",
    "timestamp": "20250709T024750.348303Z",
    "entries": [
        {
            "timestamp": "2025-07-09T02:47:50.348181Z",
            "event": "TEST_RULE_6_VIOLATION",
            "meta_id": "OPTMZ2-SR007",
            "input": {
                "description": "VALIS template not enforced"
            },
            "output": {
                "status": "verifiable",
```

```
                    "verifiable": true,
                    "sha256": "abc123",
                    "ripemd160": "def456"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july09.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": false
                }
            }
        ],
        "2ha": null
    },
    {
        "file": "audit_log_OPTMZ2-SR008_20250709T025024.085862Z.json",
        "meta_id": "OPTMZ2-SR008",
        "timestamp": "20250709T025024.085862Z",
        "entries": [
            {
                "timestamp": "2025-07-09T02:50:24.085794Z",
                "event": "TEST_AUDITLOGGER_PASS_CME",
                "meta_id": "OPTMZ2-SR008",
                "input": {
                    "description": "Operational log with artificial cryptographic
anchors for testing only.",
                    "session_scope": "MVP1_TEST_PASS",
                    "trigger": "Manual test run"
                },
                "output": {
                    "status": "verifiable",
                    "verifiable": true,
                    "sha256": "abc123def456...",
                    "ripemd160": "7890ghijkl...",
                    "next_step": "None"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july09.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true
                }
            }
        ],
        "2ha": "256575d1ea749e72d06f851900b33058e8c33e9e"
    }
  ]
}
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `2a54b7ac969042ed8ec2aa23f45b9181e33fb77fe7954fab7043ac17e819a7d7`
- **RIPEMD160 (.2ha):** `a6ef722d1b6e5cb2646c242ca0598275eb19a62b`

OTS Validation

- **File:** `session_log_OPTMZ-SESS005_20250709T025037.058926Z.hash.ots`
- **SHA256:** `5a07ff7068e62f8753f84d44e0ef8865212f4c78d9ad805b17755c2c66d87aa3`
- **Bitcoin TXID:**
  `140802dd7ad42466bbd4022bacb62dd728219df2a4ef4aa64507e42fc9962260`
- **Bitcoin Block:** `904684`
- **Date of Existence:** `2025-07-09 AEST`
- **Merkle Root:** `a45a94e45260601e46729234f66c167f8043c131b9bee09749b49f08c55a2fd3`

Audit Record:

- **File Name:** `session_log_OPTMZ-SESS009_20250709T053543.889521Z.json`
- **meta_id:** `OPTMZ-SESS009`
- **Timestamp:** `20250709T053543.889521Z`
- **Classification:** `SESSION_LOG`
- **Subcategory:** `Session Logger Enhancement Test – SHA256 + OTS Capture` `(Optimisation_MVP1)`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** `Successful test of updated` SessionLogger.py `with SHA256 and` .ots `filename capture. Log confirms post-patch functionality including canonical` .2ha `output, clean session structure, and integration of cryptographic metadata for reproducibility workflows. Confirms readiness for automated` .md `insertion and future OTS verification modules.`
- **File Contents:**

```
{
    "session_meta_id": "OPTMZ-SESS009",
    "timestamp": "20250709T053543.889521Z",
    "compiled_logs": [
        {
            "file": "audit_log_OPTMZ2-SR009_20250709T053527.591402Z.json",
            "meta_id": "OPTMZ2-SR009",
            "timestamp": "20250709T053527.591402Z",
            "entries": [
                {
                    "timestamp": "2025-07-09T05:35:27.591327Z",
                    "event": "TEST_AUDITLOGGER_PASS_CME",
                    "meta_id": "OPTMZ2-SR009",
                    "input": {
                        "description": "Operational log with artificial cryptographic
anchors for testing only.",
                        "session_scope": "MVP1_TEST_PASS",
                        "trigger": "Manual test run"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "sha256": "abc123def456...",
                        "ripemd160": "7890ghijkl...",
                        "next_step": "None"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july09.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true
                    }
                }
            ],
            "sha256":
"43411974bcf5b73f18d68df3e31a3d278f86aaf5ecf00a4fc8959e8248e108d3",
            "2ha": "10e5ce497fccc48654e8611f5570c67cd28e2bcc",
            "ots_file": "audit_log_OPTMZ2-SR009_20250709T053527.591402Z.hash.ots"
        }
    ]
}
```

Cryptographic Hashes (from `.json` **)**

- **SHA256 (.hash):**
  `c6cc80527cf4a1a93ba4829cab9d6ceb31a02f61026a070c7d1ee4dc1fc065bd`
- **RIPEMD160 (.2ha):** `581028f2e161cdfc294e2da70c9d3aaf28af0a8a`

OTS Validation

- **File:** `session_log_OPTMZ-SESS009_20250709T053543.889521Z.hash.ots`
- **SHA256:** `03a491deb656dc1905055c131c44c8bd83b40d8c32dc61ee5684493a0d0c0fa3`

- **Bitcoin TXID:**
  `075c9e871e8e13ec180d8bc66d5fcd898d64a82da455342515108d45f52f9251`
- **Bitcoin Block:** `904703`
- **Date of Existence:** `2025-07-09 AEST`
- **Merkle Root:** `eed1c35658d59c125d424107e0608e20a249020a30da8ff7fbb408ea2d6633ce`

Audit Record:

- **File Name:** `audit_log_DRTELLES-LOG001_20250713T224621.564735Z.json`
- **meta_id:** `DRTELLES-LOG001`
- **Timestamp:** `20250713T224621.564735Z`
- **Classification:** `SESSION_LOG`
- **Subcategory:** `VALIS_Batch_Reproducibility`
- **LLM Used:** `LLM1`
- **Commander Verified:** `true`
- **AI Used:** `true`
- **Relevance Score (1–5):** `5`
- **Required in Final Publication?** `Yes`
- **Summary:** VALIS v2.4 batch audit of 16 files under `DRTELLES-SESS001`. Screenshot timestamp delta (20s) validated. Filenames conform to `___<UTC>` convention. Dual-hash (`folder_dual_hash`) enforced and uniqueness confirmed. `.2ha`, `.hash`, `.ots` present for all entries. CME rules 1–6 enforced under Sentinel Protocol v3.1.
- **Summary:** First confirmed and validated implementation of VALIS batch integrity pipeline using `valis_batchauditlogger_template.py (v2.4_july13.25)` and `valis_batchnameverifier.py`. 16 canonical evidence files processed under `DRTELLES-SESS001`. PRE/POST screenshot delta = 20s confirmed. Filenames adhered to enforced `___<UTC>` timestamp schema. All `.2ha`, `.hash`, `.ots` outputs present. All CME Rules 1–6 enforced under Sentinel Protocol v3.1.
- **File Contents:**

```
 [
    {
        "timestamp": "2025-07-13T22:46:21.564450Z",
        "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
        "meta_id": "DRTELLES-LOG001",
        "input": {
            "batch_filenames": [
                "AUDIT-
EVIDENCE_FUNC_PASS_SentPrtclv2.0_SESS4_MainManuscript_Figures_MATCH_TellesMeta_Forest
Plotx13_v.may19.25.pdf___20250713T033904.655100Z",
                "AUDIT-
EVIDENCE_FUNC_PASS_SentPrtclv2.0_SESS4_SemiAutomated_REML_FunnelPlotsx134_v.may19.25.
pdf___20250713T033842.457422Z",
                "AUDIT-
EVIDENCE_FUNC_PASS_SentPrtclv2.0_SESS4_Supplement_Figures_MATCH_TellesMeta_ForestPlot
x123_v.may19.25.pdf___20250713T033912.694115Z",

"AUDIT_FUNC_PASS_SentPrtclv2.0_SESS2_SemiAuto_DL_MetaForestplsx93_v.may12.25.md___202
50713T033847.236217Z",

"AUDIT_FUNC_PASS_SentPrtclv2.0_SESS3_SemiAuto_DL_MetaForestplsx115_v.may18.25.md___20
250713T033857.162663Z",

"AUDIT_FUNC_PASS_SentPrtclv2.0_SESS4_SemiAuto_REML_MetaForestplsx136_FunnelPlotsx134_
v.may19.25.md___20250713T033908.682134Z",
                "Dr.Telles_EVIDENCE_Commonwealth Scholarship_Awarded by The Hon Julia
Guillard MP.PNG___20250713T033910.673961Z",
                "Dr.Telles_EVIDENCE_Dean's Honours List
2012_BMedScFinalYear8AdvancedSubjects_HighDistictionAverage.pdf___20250713T033845.303
032Z",
                "Dr.Telles_EVIDENCE_Dean's Honours List
2013_MDyear1.pdf___20250713T033859.033073Z",
                "Dr.Telles_EVIDENCE_Dean's Honours List
2014_MDyear2.pdf___20250713T033900.671468Z",
                "Dr.Telles_EVIDENCE_Finalist_The Royal Australasian College of
Physicians Trainee Research Awards.pdf___20250713T033914.706890Z",
                "Dr.Telles_EVIDENCE_Heart Failure Prize_Cardiac Society of Australia
and New Zealand_2018.jpg___20250713T033853.240308Z",
                "Dr.Telles_EVIDENCE_Patron\u2019s Prize_ Royal Prince Alfred
Hospital_2018 .jpg___20250713T033849.242843Z",
                "Dr.Telles_EVIDENCE_Top Downloaded
Article_ECHOCARDIOGRAPHY_2021.pdf___20250713T033851.262712Z",

"Dr.Telles_EVIDENCE_WAM85_FinalYear96_OxfordMelbouneSchollarsAward_Transcript_MD(Dist
)_UniMelb.pdf___20250713T033906.660875Z",
                "Dr.Telles_JACC REVIEWER Role
EVIDENCE_jimg_reviewer_cme_certificate.rtf___20250713T033902.641693Z"
            ],
            "evidence_type": "SHA256-RIPEMD160 reproducibility (deferred)",
            "session_context": "DRTELLES-SESS001",
            "batch_screenshot_pre": "BATCH_PRE_20250713T033842Z.png",
            "batch_screenshot_post": "BATCH_POST_20250713T033902Z.png",
            "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
BATCH-20250713T033842.455790Z, 16 files, delta=20s. folder_dual_hash computed and
checked.",
            "delta_seconds": 20,
            "executed_template": "valis_batchauditlogger_template.py (v2.4)"
```

```
        },
        "output": {
            "status": "verifiable",
            "verifiable": true,
            "final_hash_disclosed": false,
            "audit_type": "REPRODUCIBILITY",
            "meta_id": "DRTELLES-LOG-BATCH-20250713T033842.455790Z",
            "folder_dual_hash": "d3e74c052ebc5266bea9972d98be830b1fdc681e"
        },
        "audit": {
            "AI_used": true,
            "LLM_used": "LLM1",
            "human_verified": true,
            "module_version": "v.july13.25",
            "ai_editor_LLM_human_agreement": true,
            "VALIS_template_enforced": true,
            "AI_override": false
        },
        "timestamp_confirmed": true
    }
]
```

Cryptographic Hashes (from `.json`)

- **SHA256 (.hash):**
  `f531b536d368fe0f7cd8e0d5e499329fbf85ce9b658dae22c64416954e788aa6`
- **RIPEMD160 (.2ha):** `da977c816a7365d2f17acb11b9311286505c3eca`

OTS Validation

- **File:** `audit_log_DRTELLES-LOG001_20250713T224621.564735Z.hash.ots`
- **SHA256:** `1fc5a20022a5de2fd62bd03c2d10efb2b7363fef8ef48a6ff4e56e1ed71eb268`
- **Bitcoin TXID:**
  `b6613b9183d0214ccdbfaa5e66b1e9b0fa4db19069cfde6f643cfcf30b821b15`
- **Bitcoin Block:** `905428`
- **Date of Existence:** `2025-07-14 AEST`
- **Merkle Root:** `dd5dffd7f4a6a0faabfe78cd1feea08f060e0332706c51dc0ba18e4fee71c4c4`

Session-Level `meta_data`

Session Record:

- **File Name:** `session_log_SENTINFRA-SESS001_20250719T074009.072317Z.json`
- **meta_id:** `SENTINFRA-SESS001`
- **Timestamp:** `20250719T074009.072317Z`
- **File Contents:**

```
{
    "session_meta_id": "SENTINFRA-SESS001",
    "timestamp": "20250719T074009.072317Z",
    "compiled_logs": [
        {
            "file": "audit_log_SENTINFRA-LOG001_20250719T072509.043944Z.json",
            "meta_id": "SENTINFRA-LOG001",
            "timestamp": "20250719T072509.043944Z",
            "entries": [
                {
                    "timestamp": "2025-07-19T07:25:09.043533Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG001",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250719T071359.580991Z",

"AUDIT_FUNC_PASS_Firewall_upgrade_CME_compliance_enforcer.py_v.july6.25.md___20250719
T071359.581697Z",

"AUDIT_REPRODUCIBILITY_FAIL_hash_recalc_LLM1_v.july1.25.md___20250719T071359.583603Z"
,

"AUDIT_REPRODUCIBILITY_FAIL_sha256_ripemd160_v.july4.25.md___20250719T071359.593000Z"
,

"AUDIT_REPRODUCIBILITY_PASS_hashvalidatorblock.py_patch_v.july1.25.md___20250719T0713
59.578149Z",

"AUDIT_REPRODUCIBILITY_PASS_sha256_ripemd160_v.july6.25.md___20250719T071359.581941Z"
,

"OPENTIMESTAMPS_BatchUpgrade_Protocol_v.july5.25.md___20250719T071359.580594Z",
                            "VALIS-Test_PASS_DuplicateBaseBlocked_AEST_Screenshot
2025-07-14 at 9.04.35\u202fam.png___20250719T071359.585966Z",
                            "VALIS-
Test_PASS_ErrorPrintout_ExecutionConstraint.md___20250719T071359.591755Z",
                            "VALIS-
Test_PASS_Screenshot_DeltaTooLargeBlocked_AEST_Screenshot 2025-07-14 at
9.04.46\u202fam.png___20250719T071359.586129Z",

"VALIS_Audit_Logger_Protocol.md___20250719T071359.585231Z",

"VALIS_Integrity_Firewall_Update_July4_25_v1.0.md___20250719T071359.588895Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_01, 12 files, delta=195s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
```

```
                "output": {
                    "status": "verifiable",
                    "verifiable": true,
                    "final_hash_disclosed": false,
                    "audit_type": "REPRODUCIBILITY",
                    "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_01",
                    "folder_dual_hash":
"1b73eb25d609845c6440cb129f157c80046de0c6"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july19.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"f69905003d1fec395cae59947a9337e4e6ad0b4be5f121eb5faaa91574cae842",
        "2ha": "74a9716ef7d0ce3ab685f9ebf981bb12e5def2f6",
        "ots_file": "audit_log_SENTINFRA-LOG001_20250719T072509.043944Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG002_20250719T072537.417349Z.json",
        "meta_id": "SENTINFRA-LOG002",
        "timestamp": "20250719T072537.417349Z",
        "entries": [
            {
                "timestamp": "2025-07-19T07:25:37.416872Z",
                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                "meta_id": "SENTINFRA-LOG002",
                "input": {
                    "batch_filenames": [
                        ".DS_Store___20250719T071402.930051Z",

"C0_v1.0_PersonalCoreMemory_summary.md___20250719T071402.939440Z",

"C10_v1.0_ExecutionThreads_summary.md___20250719T071402.939648Z",

"C1_v1.0_CoreProtocols_summary.md___20250719T071402.936833Z",

"C2_v1.0_MVP_Deliverables_summary.md___20250719T071402.931499Z",

"C3_v1.0_ClinicalTrial_summary.md___20250719T071402.930122Z",

"C4_v1.0_StrategicAssets_summary.md___20250719T071402.936710Z",

"C5_v1.0_LegalEthics_summary.md___20250719T071402.935084Z",

"C6_v1.0_CommunicationThreads_summary.md___20250719T071402.932420Z",

"C7_v1.0_NotebookLMIntegration_summary.md___20250719T071402.939075Z",
```

```
"C8_v1.0_SystemDesign_summary.md___20250719T071402.930554Z",

"C9_v1.0_SentientOperations_summary.md___20250719T071402.934164Z"
                    ],
                    "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                    "session_context": "SENTINFRA-SESS001",
                    "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                    "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                    "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_02_SentinelProtocol_v1, 12 files, delta=195s.
folder_dual_hash computed and checked.",
                    "delta_seconds": 195,
                    "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                },
                "output": {
                    "status": "verifiable",
                    "verifiable": true,
                    "final_hash_disclosed": false,
                    "audit_type": "REPRODUCIBILITY",
                    "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_02_SentinelProtocol_v1",
                    "folder_dual_hash":
"2dd469952e9fea0aa9c8390adafe5147933e3b37"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july19.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"7f9936f9ff4ac3099c3e07d43fa485278fb842971a0eda50e4f1690c5c56283f",
        "2ha": "f7055f4a29b6b0397d09bf991970134508f7f0a8",
        "ots_file": "audit_log_SENTINFRA-LOG002_20250719T072537.417349Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG003_20250719T072600.077907Z.json",
        "meta_id": "SENTINFRA-LOG003",
        "timestamp": "20250719T072600.077907Z",
        "entries": [
            {
                "timestamp": "2025-07-19T07:26:00.077664Z",
                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                "meta_id": "SENTINFRA-LOG003",
                "input": {
                    "batch_filenames": [
                        ".DS_Store___20250719T071406.260968Z",
```

```
"AuditInfrastructure_MVP4_v2.0.md___20250719T071406.276715Z",

"C0_PersonalCoreMemory_v2.0.md___20250719T071406.268436Z",

"C10_ExecutionThreads_v1.0_v2.0.md___20250719T071406.257062Z",

"C1_CoreProtocols_v1.0_v2.0.md___20250719T071406.292306Z",
                        "C2_MVPDeliverables_v2.0.md___20250719T071408.193464Z",
                        "C3_ClinicalTrialData_v2.0.md___20250719T071408.327359Z",

"C4_StrategicAssets_v1.0_v2.0.md___20250719T071406.286125Z",
                        "C5_LegalEthics_v1.0_v2.0.md___20250719T071406.269493Z",

"C6_CommunicationThreads_v1.0_v2.0.md___20250719T071408.327168Z",
                        "C7_LLM2Integration_v2.0.md___20250719T071408.330537Z",
                        "C8_SystemDesign_v2.0.md___20250719T071406.294617Z",

"C9_SentientOperations_v2.0.md___20250719T071408.330821Z",

"Engineer_DeploymentPhaseMap_v1.0.md___20250719T071408.187840Z",

"Engineer_OperationalPack_v2.0.md___20250719T071408.324526Z",

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            "C5.3_ComplianceEnforcementMatrix_update_v.july6.25.md___20250719T071421.036854Z",

            "C5.7_CredentialAudit_Doctrine_v.july14.25.md___20250719T071422.967143Z",

            "C7.0_MultiAgentMemorySync_update_v.july17.25.md___20250719T071421.009462Z",

            "C7.1_StrategistNodeIntegration_v3.1.md___20250719T071421.008950Z",

            "C8.3_CodeExecution_rewired_v_july.13.25.md___20250719T071421.025484Z",

            "C8.5_BatchEvidenceAgreementProtocol_v1.0.md___20250719T071421.030741Z",

            "C9.0_Clinical_Trials_Monetization_Pathway_SentinelProtocolv3.1.md___20250719T071422.
964979Z",

            "C9.1_Clinical_Trials_AuditExecution_v3.1.md___20250719T071422.966627Z",

            "C9.3_ControlledNodeAccessGrid_v3.1.md___20250719T071421.038462Z",

            "C9.5_ZeroCustodyReproducibilityProtocol_v3.1.md___20250719T071421.023124Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_06_SentinelProtocol_v3.1, 34 files, delta=195s.
folder_dual_hash computed and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_06_SentinelProtocol_v3.1",
                        "folder_dual_hash":
"064080e94b42c3cc169c73c3705433ee1c13ebe7"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
```

```
                        "timestamp_confirmed": true
                    }
                ],
                "sha256":
"7d7ae96f656488eef806a1de5a955e2c2a8c74283357c370e11ae43eece238ff",
                "2ha": "74bd86628f762c5de4a2ce1b783b78482de96bca",
                "ots_file": "audit_log_SENTINFRA-LOG006_20250719T072655.317458Z.hash.ots"
            },
            {
                "file": "audit_log_SENTINFRA-LOG007_20250719T072713.239358Z.json",
                "meta_id": "SENTINFRA-LOG007",
                "timestamp": "20250719T072713.239358Z",
                "entries": [
                    {
                        "timestamp": "2025-07-19T07:27:13.239034Z",
                        "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                        "meta_id": "SENTINFRA-LOG007",
                        "input": {
                            "batch_filenames": [
                                " batch_dualhasher_multi.py___20250719T071425.789775Z",
                                ".DS_Store___20250719T071425.750574Z",
                                "4-Tier_Human<>Multi-
LLM_Agreement_System.md___20250719T071425.777403Z",

"CSV_to_MD_integrity_Validator.py___20250719T071425.768500Z",

"Formulas_Human<>LLM3<>LLM4_AUDIT_titles_and_abstracts_Template.xlsx___20250719T07142
5.768836Z",
                                "Meta-Analysis
Filename_Parser_Excel_Code_Sheet.md___20250719T071425.784976Z",
                                "auditlogger.py___20250719T071427.406536Z",
                                "batch_csv_to_md_converted.py___20250719T071425.753640Z",
                                "batch_dualhasher.py___20250719T071425.788417Z",
                                "batch_ots_upgrader.py___20250719T071425.779315Z",

"canonical_auditlogger_terminal_template.py___20250719T071427.406479Z",
                                "compile_md_to_csv.py___20250719T071425.769743Z",
                                "compliance_enforcer.py___20250719T071427.407614Z",
                                "csv_diagnostic_checker.py___20250719T071425.772533Z",
                                "csv_splitter.py___20250719T071425.780528Z",

"csv_to_pdf_batch_converter.py___20250719T071425.747826Z",
                                "extract_hashes.py___20250719T071425.755619Z",
                                "filenamechange.py___20250719T071425.758243Z",
                                "foldername_tofilename.py___20250719T071425.750246Z",
                                "generate_LLM3_prompts.py___20250719T071425.770733Z",
                                "hashvalidatorblock.py___20250719T071425.753262Z",
                                "md_to_pdf.py___20250719T071425.774028Z",
                                "opreturnanchor.py___20250719T071425.775486Z",
                                "run_all_funnel_batch.R___20250719T071425.759655Z",
                                "run_all_meta_batch_DL.R___20250719T071425.751109Z",
                                "run_all_meta_batch_REML.R___20250719T071425.782425Z",
                                "session_logger.py___20250719T071425.762489Z",
                                "split_csv_by_group.py___20250719T071425.784381Z",

"valis_auditlogger_template.py___20250719T071427.406449Z",
```

```
            "valis_batchauditlogger_template.py___20250719T071425.770365Z",
                            "valis_batchnameverifier.py___20250719T071425.758290Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_07_SentinelCodes_v3.1, 31 files, delta=195s.
folder_dual_hash computed and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_07_SentinelCodes_v3.1",
                        "folder_dual_hash":
"a13da20c10e45d2249462acc09fb6adcf9203502"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"96d7266627fdadbe750a386daa82c238f9e5bacb3f93eda4f6da3f58d9dc3074",
            "2ha": "14359d685e1c149212d9d289b8f91de307bc9698",
            "ots_file": "audit_log_SENTINFRA-LOG007_20250719T072713.239358Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG008_20250719T072735.155936Z.json",
            "meta_id": "SENTINFRA-LOG008",
            "timestamp": "20250719T072735.155936Z",
            "entries": [
                {
                    "timestamp": "2025-07-19T07:27:35.155365Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG008",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250719T071430.056418Z",

"AUDIT_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_chflags_uchg_lock_integrity_v.jul
y11.25.md___20250719T071430.053607Z"
```

```
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_08, 2 files, delta=195s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_08",
                        "folder_dual_hash":
"1498a382849153fe9c93e6b532786e1ef9986905"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"5e25cf14d3d9e4eff5dc1d23e1486ba1d9a08fe00b6b2ef70020d718d2c04c80",
            "2ha": "ecd2de218d958f359e2f9df0ccf132f502e462ba",
            "ots_file": "audit_log_SENTINFRA-LOG008_20250719T072735.155936Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG009_20250719T072753.023026Z.json",
            "meta_id": "SENTINFRA-LOG009",
            "timestamp": "20250719T072753.023026Z",
            "entries": [
                {
                    "timestamp": "2025-07-19T07:27:53.022753Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG009",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250719T071432.062249Z",
                            "ADD JACC CVI REVIEWER
ROLE.pdf___20250719T071432.072338Z",

"C5.7_CredentialAudit_Doctrine_v1.0.md___20250719T071432.062106Z",
```

```
"DeepAudit_CSV001_HumanAudit_LLM3LLM4_titles_and_abstracts_001_Combined.csv___2025071
9T071432.075327Z",

"Final_Figures_supplement.pptx___20250719T071432.068577Z",
                            "Final_Tables.xlsx___20250719T071432.064743Z",

"Final_TelleMA_manuscript_word.docx___20250719T071432.081123Z",
                            "Screenshot 2025-07-11 at
10.41.03\u202fam.png___20250719T071432.066609Z",
                            "anchor_log_MVP1-
SR033_20250620T012012.872478Z.json___20250719T071432.066371Z",
                            "audit_log_OPTMZ2-
SR001_20250709T023343.365390Z.json___20250719T071432.075588Z",
                            "audit_log_OPTMZ2-
SR008_20250709T025024.085862Z.json___20250719T071432.065085Z",
                            "audit_log_OPTMZ2-
SR009_20250709T053527.591402Z.json___20250719T071432.076576Z",
                            "batch_dualhasher.py___20250719T071432.079360Z",
                            "session_log_OPTMZ-
SESS001_20250709T023626.543281Z.json___20250719T071432.075846Z",
                            "session_log_OPTMZ-
SESS005_20250709T025037.058926Z.json___20250719T071432.076285Z",
                            "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250719T071432.081343Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_08-Evidence, 16 files, delta=195s. folder_dual_hash
computed and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_08-Evidence",
                        "folder_dual_hash":
"35d3d37ea778e481ac863f867dbc1cce4c6e99b2"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
```

```
                }
            ],
            "sha256":
"3b778b0159baae1cb2d50ba10a3597d4fac49594d90660ef09ad61cc07f5adcf",
            "2ha": "d7b7bf96cc7e02876853c2d3dd81f83c95d4b1cc",
            "ots_file": "audit_log_SENTINFRA-LOG009_20250719T072753.023026Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG010_20250719T072811.283310Z.json",
            "meta_id": "SENTINFRA-LOG010",
            "timestamp": "20250719T072811.283310Z",
            "entries": [
                {
                    "timestamp": "2025-07-19T07:28:11.282821Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG010",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250719T071434.485924Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z",
                            "hash_audit_report_DRTELLES-VAL_SENTINFRA-
SESS001_frozen_files_BATCH-20250718T210927.076084Z.csv___20250719T071434.488733Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_09, 3 files, delta=195s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_09",
                        "folder_dual_hash":
"ee9f8c554570f670aa3ba5bf3d51c86712cd1380"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
```

```
                }
            ],
            "sha256":
"aa102fa0fbcd3abe9b9b208407554188af822c0deaa3698e4c6694445bce2bae",
            "2ha": "31fc60a38346464f27f32af3e1c9b55b2c0d8bf8",
            "ots_file": "audit_log_SENTINFRA-LOG010_20250719T072811.283310Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG011_20250719T072829.126010Z.json",
            "meta_id": "SENTINFRA-LOG011",
            "timestamp": "20250719T072829.126010Z",
            "entries": [
                {
                    "timestamp": "2025-07-19T07:28:29.125470Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG011",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250719T071436.504823Z",
                            "SENTINFRA-SESS1_Sentinel Protocol v3.1 Infrastructure
Pre-Public Deployment Audit Log.md___20250719T071436.505803Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS001",
                        "batch_screenshot_pre": "BATCH_PRE_20250719T071154Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250719T071509Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS001_batch_evidence_10, 2 files, delta=195s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 195,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS001_batch_evidence_10",
                        "folder_dual_hash":
"d3d774875d98726ecc84d6fe514973053b54b9f2"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july19.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
```

```
"a63fd45a49625edf2f4038b9f6e6ed1114a25ccbf9ba6c6b1aca33f8a343ee7c",
            "2ha": "b4c7dff3735665f5a2296cf971d0b31c1f225594",
            "ots_file": "audit_log_SENTINFRA-LOG011_20250719T072829.126010Z.hash.ots"
        }
    ]
}
```

Session Record:

- **File Name:** `session_log_SENTINFRA-SESS005_20250728T035324.098266Z.json`
- **meta_id:** `SENTINFRA-SESS005`
- **Timestamp:** `20250728T035324.098266Z`
- **File Contents:**

```
{
    "session_meta_id": "SENTINFRA-SESS005",
    "timestamp": "20250728T035324.098266Z",
    "compiled_logs": [
        {
            "file": "audit_log_SENTINFRA-LOG012_20250720T013315.075405Z.json",
            "meta_id": "SENTINFRA-LOG012",
            "timestamp": "20250720T013315.075405Z",
            "entries": [
                {
                    "timestamp": "2025-07-20T01:33:15.075007Z",
                    "event": "ANCHOR_OP_RETURN_REGISTERED",
                    "meta_id": "SENTINFRA-LOG012",
                    "input": {
                        "session_context": "SENTINFRA-SESS001",
                        "txid":
"152bce9a7d9c2decc8641ce8cd30ae07f5b02adcb4e38bbedbee5f00a14e69a1",
                        "block_height": 906220,
                        "meta_id": "SENTINFRA-SESS001",
                        "op_return_payload": "SENTINFRA-SESS001 |
714a8429313004b0ff2fd5069f23702bbb0c9fe1",
                        "validation_step": "Session log `.2ha` verified by OP_RETURN
on-chain anchor. Transaction confirmed in block 906220. TXID embedded via decoded
OP_RETURN payload. Session reproducibility preserved and timestamp confirmed.",
                        "timestamp_registered": "2025-07-20T01:33:15.075000Z"
                    },
                    "output": {
                        "status": "anchored",
                        "anchored": true,
                        "txid":
"152bce9a7d9c2decc8641ce8cd30ae07f5b02adcb4e38bbedbee5f00a14e69a1",
                        "block": 906220,
                        "op_return_payload": "SENTINFRA-SESS001 |
714a8429313004b0ff2fd5069f23702bbb0c9fe1"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july20.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"7a8054ed0bb14463d55dc3290032406410f8ae3a9b1d6384c2d4f88de862ce67",
            "2ha": "9ab059c573469aa0961a3f32920705bb72d82f14",
            "ots_file": "audit_log_SENTINFRA-LOG012_20250720T013315.075405Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG013_20250720T020423.154072Z.json",
            "meta_id": "SENTINFRA-LOG013",
            "timestamp": "20250720T020423.154072Z",
            "entries": [
```

```
                {
                    "timestamp": "2025-07-20T02:04:23.153496Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG013",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250720T015244.124629Z",
                            "AUDIT-
EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july
20.25_ots_upgrade_log_20250708T223347Z.txt___20250720T015244.125499Z",
                            "AUDIT-
EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july
20.25_ots_upgrade_log_20250708T223813Z.txt___20250720T015244.125189Z",
                            "AUDIT-
EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july
20.25_ots_upgrade_log_20250708T223927Z.txt___20250720T015244.125585Z",
                            "AUDIT-
EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july
20.25_ots_upgrade_log_20250718T040941Z.txt___20250720T015244.125010Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250720T015216Z.jpeg",
                        "batch_screenshot_post": "BATCH_POST_20250720T015308Z.jpeg",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_01, 5 files, delta=52s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 52,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_01",
                        "folder_dual_hash":
"c1bee6e707ac96ceeae3a5ceb215e2e057138458"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july20.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"b0205a3bd0ae764fa6133f347c82a1cce187119dd5adaf47b6b3d82b6ea9ddff",
            "2ha": "ac17a1cf3b4356acc7c61dab91ea03b1f8466a3c",
```

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                "ots_file": "audit_log_SENTINFRA-LOG013_20250720T020423.154072Z.hash.ots"
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        {
                "file": "audit_log_SENTINFRA-LOG014_20250720T021849.138963Z.json",
                "meta_id": "SENTINFRA-LOG014",
                "timestamp": "20250720T021849.138963Z",
                "entries": [
                        {
                                "timestamp": "2025-07-20T02:18:49.138700Z",
                                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                                "meta_id": "SENTINFRA-LOG014",
                                "input": {
                                        "batch_filenames": [
                                                ".DS_Store___20250720T020922.079289Z",
                                                "audit_log_MVP1-
SR001_20250704T045719.461011Z.json___20250720T020922.076352Z",
                                                "audit_log_MVP1-
SR002_20250704T050511.217387Z.json___20250720T020922.079058Z",
                                                "audit_log_MVP1-
SR004_20250526T032031.221195Z.json___20250720T020922.080384Z",
                                                "audit_log_MVP1-
SR005_20250526T034312.228852Z.json___20250720T020922.084144Z",
                                                "audit_log_MVP1-
SR025_20250614T063132.106059Z.json___20250720T020922.082408Z",
                                                "audit_log_MVP1-
SR029_20250615T054956.588879Z.json___20250720T020922.109416Z",
                                                "audit_log_MVP1-
SR030_20250615T233259.294016Z.json___20250720T020922.091647Z",
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SR031_20250616T023206.516729Z.json___20250720T020922.086769Z",
                                                "audit_log_MVP1-
SR032_20250616T024309.303174Z.json___20250720T020922.085630Z",
                                                "audit_log_MVP1-
SR033_20250617T070522.437324Z.json___20250720T020922.102471Z",
                                                "audit_log_MVP1-
SR034_20250617T073007.955006Z.json___20250720T020922.081411Z",
                                                "audit_log_MVP1-
SR035_20250619T034308.416112Z.json___20250720T020922.087731Z",
                                                "audit_log_MVP1-
SR036_20250623T041519.661578Z.json___20250720T020922.107239Z",
                                                "audit_log_MVP1-
SR038_20250623T050153.592411Z.json___20250720T020922.103522Z",
                                                "audit_log_MVP1-
SR041_20250623T051610.180783Z.json___20250720T020922.073069Z",
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SR047_20250624T061128.502561Z.json___20250720T020922.102454Z",
                                                "audit_log_MVP1-
SR057_20250701T022809.888350Z.json___20250720T020922.071047Z",
                                                "audit_log_MVP1-
SR058_20250701T024226.076182Z.json___20250720T020922.078496Z",
                                                "audit_log_MVP1-
SR076_20250701T224228.412884Z.json___20250720T020922.069205Z",
                                                "audit_log_MVP1-
SR083_20250704T043256.725227Z.json___20250720T020922.078613Z",
                                                "audit_log_MVP1-
SR084_20250704T044646.267182Z.json___20250720T020922.082283Z",
                                                "session_log_OPTMZ-
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```
SESS005_20250709T025037.058926Z.json___20250720T020922.093565Z",
                            "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250720T020922.103802Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250720T120801Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250720T121038Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
INDEPENDENT_DOCTOR_VALIDATOR_AUDIT_SENTINFRA-SESS002_batch_evidence_02, 24 files,
delta=157s. folder_dual_hash computed and checked.",
                        "delta_seconds": 157,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-
INDEPENDENT_DOCTOR_VALIDATOR_AUDIT_SENTINFRA-SESS002_batch_evidence_02",
                        "folder_dual_hash":
"9d3873dac499e9f373ad67e2a931c233e24e48a0"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july20.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"cf6413bee1fc7cc6c8b35460620a09b3811924ed1f0dd20aa29b8a831580631d",
            "2ha": "9c29d3e2af96ce129cbf5e83e7a772be58ef8461",
            "ots_file": "audit_log_SENTINFRA-LOG014_20250720T021849.138963Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG015_20250720T024034.238954Z.json",
            "meta_id": "SENTINFRA-LOG015",
            "timestamp": "20250720T024034.238954Z",
            "entries": [
                {
                    "timestamp": "2025-07-20T02:40:34.238666Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG015",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250720T023546.695299Z",
                            "audit_log_MVP1-
SR001_20250704T045719.461011Z.json___20250720T023546.689367Z",
```

```
                                    "audit_log_MVP1-
SR002_20250704T050511.217387Z.json___20250720T023546.694444Z",
                                    "audit_log_MVP1-
SR004_20250526T032031.221195Z.json___20250720T023546.695421Z",
                                    "audit_log_MVP1-
SR005_20250526T034312.228852Z.json___20250720T023546.705571Z",
                                    "audit_log_MVP1-
SR025_20250614T063132.106059Z.json___20250720T023546.699034Z",
                                    "audit_log_MVP1-
SR029_20250615T054956.588879Z.json___20250720T023546.723879Z",
                                    "audit_log_MVP1-
SR030_20250615T233259.294016Z.json___20250720T023546.712625Z",
                                    "audit_log_MVP1-
SR031_20250616T023206.516729Z.json___20250720T023546.711734Z",
                                    "audit_log_MVP1-
SR032_20250616T024309.303174Z.json___20250720T023546.705688Z",
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SR033_20250617T070522.437324Z.json___20250720T023546.714702Z",
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SR034_20250617T073007.955006Z.json___20250720T023546.696258Z",
                                    "audit_log_MVP1-
SR035_20250619T034308.416112Z.json___20250720T023546.711903Z",
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SR036_20250623T041519.661578Z.json___20250720T023546.722372Z",
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                                    "audit_log_MVP1-
SR047_20250624T061128.502561Z.json___20250720T023546.713606Z",
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SR057_20250701T022809.888350Z.json___20250720T023546.685644Z",
                                    "audit_log_MVP1-
SR058_20250701T024226.076182Z.json___20250720T023546.692385Z",
                                    "audit_log_MVP1-
SR076_20250701T224228.412884Z.json___20250720T023546.683943Z",
                                    "audit_log_MVP1-
SR083_20250704T043256.725227Z.json___20250720T023546.694427Z",
                                    "audit_log_MVP1-
SR084_20250704T044646.267182Z.json___20250720T023546.697577Z",
                                    "session_log_OPTMZ-
SESS005_20250709T025037.058926Z.json___20250720T023546.712904Z",
                                    "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250720T023546.721862Z"
                                ],
                                "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                                "session_context": "SENTINFRA-SESS002",
                                "batch_screenshot_pre": "BATCH_PRE_20250720T023515Z.png",
                                "batch_screenshot_post": "BATCH_POST_20250720T023636Z.png",
                                "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
INDEPENDENT_ENGINEER_VALIDATOR_AUDIT_SENTINFRA-SESS002_batch_evidence_03, 24 files,
delta=81s. folder_dual_hash computed and checked.",
                                "delta_seconds": 81,
                                "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                            },
```

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                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-
INDEPENDENT_ENGINEER_VALIDATOR_AUDIT_SENTINFRA-SESS002_batch_evidence_03",
                        "folder_dual_hash":
"9d3873dac499e9f373ad67e2a931c233e24e48a0"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july20.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"8df7e6b07b4015f5e331259cd4aeaa9f33cdf2866cdf545e5ac0ae0f6fc70c68",
            "2ha": "48eaf1c98d7d7a2bff6efacf74f05c8fafde33c8",
            "ots_file": "audit_log_SENTINFRA-LOG015_20250720T024034.238954Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-SESS001_20250721T030320.457090Z.json",
            "meta_id": "SENTINFRA-SESS001",
            "timestamp": "20250721T030320.457090Z",
            "entries": [
                {
                    "timestamp": "2025-07-21T03:03:20.456230Z",
                    "event": "ANCHOR_OP_RETURN_REGISTERED",
                    "meta_id": "SENTINFRA-SESS001",
                    "input": {
                        "session_context": "SENTINFRA-SESS001",
                        "txid":
"c4d2e53197983bf84f219b6b3cf4912fa5ebd3c030ae3debf7f35c1eef135e1c",
                        "block_height": 906434,
                        "meta_id": "SENTINFRA-SESS001",
                        "op_return_payload": "SENTINEL|SENTINFRA-SESS001|
2ebc6ec29d3195f6d3b7050cacc75e145aaa1ad7",
                        "validation_step": "Session `.2ha` anchor verified via
OP_RETURN.\nBlock 906434 confirmed.\nTXID and payload recorded under compliance
(C5.3, C9.5).",
                        "timestamp_registered": "2025-07-21T03:03:20.456215Z"
                    },
                    "output": {
                        "status": "anchored",
                        "anchored": true,
                        "txid":
"c4d2e53197983bf84f219b6b3cf4912fa5ebd3c030ae3debf7f35c1eef135e1c",
                        "block": 906434,
                        "op_return_payload": "SENTINEL|SENTINFRA-SESS001|
2ebc6ec29d3195f6d3b7050cacc75e145aaa1ad7"
```

```
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july21.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"f82bf2515af3ae5d294bb38e3dfc765d2230b10e5548f77ee8dc1864b88ad30c",
        "2ha": "e181b923d572b255ad96f1df58c6d6e6976dc74a",
        "ots_file": "audit_log_SENTINFRA-
SESS001_20250721T030320.457090Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-SESS002_20250721T033347.027668Z.json",
        "meta_id": "SENTINFRA-SESS002",
        "timestamp": "20250721T033347.027668Z",
        "entries": [
            {
                "timestamp": "2025-07-21T03:33:47.026852Z",
                "event": "VALIDATOR_REPRODUCIBILITY_PASS",
                "meta_id": "SENTINFRA-SESS002",
                "input": {
                    "document_title": "Architect Validator Reproducibility Pass
\u2013 PreDeployment",
                    "filename": "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z",
                    "evidence_path": "evidence_files/AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z",
                    "sha256_file": "evidence_files/AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z.hash",
                    "ripemd160_file": "evidence_files/AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z.2ha",
                    "ots_file": "evidence_files/AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25.md___2025071
9T071434.488304Z.hash.ots",
                    "validator_id": "DRTELLES-VAL001",
                    "payload": "DRTELLES-VAL001|PASS|SENTINFRA-SESS001|
05cea9a984e521547de3a405b79fd93c769424fe",
                    "txid":
"ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0",
                    "block_height": 906434,
                    "session_meta_id": "SENTINFRA-SESS002",
                    "validation_step": "Validator DRTELLES-VAL001 confirms
successful reproducibility audit. File was dual-hashed and OTS-stamped. Anchor
committed to Bitcoin with confirmed payload. Compliant under C5.7, C8.3, and C9.5."
                },
```

```
                    "output": {
                        "status": "pass",
                        "validator_id": "DRTELLES-VAL001",
                        "txid":
"ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0",
                        "block": 906434,
                        "payload": "DRTELLES-VAL001|PASS|SENTINFRA-SESS001|
05cea9a984e521547de3a405b79fd93c769424fe",
                        "verifiable": true,
                        "sha256":
"00354d862d7c878a97f647e1df16f2fe2219d5a619c87a5602f46df38a071716",
                        "ripemd160": "05cea9a984e521547de3a405b79fd93c769424fe"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july21.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"4d1b802b7813da12c07e6bb90b84082e1601217543c5e8ca3194745c26f855a1",
            "2ha": "af16e0c1076add75f60c9efc1350fa16f794ff69",
            "ots_file": "audit_log_SENTINFRA-
SESS002_20250721T033347.027668Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-SESS002_20250721T230909.696517Z.json",
            "meta_id": "SENTINFRA-SESS002",
            "timestamp": "20250721T230909.696517Z",
            "entries": [
                {
                    "timestamp": "2025-07-21T23:09:09.696297Z",
                    "event": "VALIDATOR_REPRODUCIBILITY_HASH_CONFIRMED",
                    "meta_id": "SENTINFRA-SESS002",
                    "input": {
                        "document_title": "DRWOO-VAL Hash Confirmation \u2013
PreDeployment Audit",
                        "filename": "AUDIT-EVIDENCE_DRWOO-
VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20
250721T225702.419255Z",
                        "evidence_path": "evidence_files/AUDIT-EVIDENCE_DRWOO-
VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20
250721T225702.419255Z",
                        "sha256_file": "evidence_files/AUDIT-EVIDENCE_DRWOO-
VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20
250721T225702.419255Z.hash",
                        "ripemd160_file": "evidence_files/AUDIT-EVIDENCE_DRWOO-
VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20
250721T225702.419255Z.2ha",
                        "ots_file": "evidence_files/AUDIT-EVIDENCE_DRWOO-
VAL_REPRODUCIBILITY_PASS_SENTINFRA_PreDeployment_sha256_ripemd160_v.july20.25.md___20
```

```
250721T225702.419255Z.hash.ots",
                        "validator_id": "DRWOO-VAL001",
                        "session_meta_id": "SENTINFRA-SESS002",
                        "validation_step": "Validator DRWOO-VAL001 has confirmed
reproducibility of the audit file. SHA256 and RIPEMD160 hashes verified against
frozen source and OTS timestamp. OP_RETURN anchor pending. Compliance under C5.7 and
C8.3 validated."
                    },
                    "output": {
                        "status": "hash_confirmed",
                        "validator_id": "DRWOO-VAL001",
                        "verifiable": true,
                        "sha256":
"8c3554795ece0bf5034242922abaaed96c6fa19a36967c84dda79d7f8e5e61c8",
                        "ripemd160": "a54419605f5cb9fa7ce39dd5716fc18f9d43f464"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july21.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"5f0e0dfcb307df334feab7e00804360751ae5354cd5b64fe26f4cdf3337ef1e4",
            "2ha": "3da18c1a2c183ca24277b8d8047fd52b83a74ea3",
            "ots_file": "audit_log_SENTINFRA-
SESS002_20250721T230909.696517Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-SESS002_20250725T001032.263976Z.json",
            "meta_id": "SENTINFRA-SESS002",
            "timestamp": "20250725T001032.263976Z",
            "entries": [
                {
                    "timestamp": "2025-07-25T00:10:32.263651Z",
                    "event": "VALIDATOR_REPRODUCIBILITY_PASS",
                    "meta_id": "SENTINFRA-SESS002",
                    "input": {
                        "document_title": "Independent Engineer Validator \u2013
PreDeployment Reproducibility PASS",
                        "filename": "AUDIT-EVIDENCE_ENGHOOKEY-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___2025072
4T231704.083888Z",
                        "evidence_path": "evidence_files/AUDIT-EVIDENCE_ENGHOOKEY-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___2025072
4T231704.083888Z",
                        "sha256_file": "evidence_files/AUDIT-EVIDENCE_ENGHOOKEY-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___2025072
4T231704.083888Z.hash",
                        "ripemd160_file": "evidence_files/AUDIT-EVIDENCE_ENGHOOKEY-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___2025072
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4T231704.083888Z.2ha",
                        "ots_file": "evidence_files/AUDIT-EVIDENCE_ENGHOOKEY-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july23.25.md___2025072
4T231704.083888Z.hash.ots",
                        "validator_id": "ENGHOOKEY-VAL001",
                        "session_meta_id": "SENTINFRA-SESS002",
                        "validation_step": "Independent engineer validator
(ENGHOOKEY-VAL001) confirms reproducibility integrity of PreDeployment audit file.
Hashes validated via `hashvalidatorblock.py`. File is ready for OP_RETURN payload
execution and Bitcoin anchoring."
                    },
                    "output": {
                        "status": "pass",
                        "validator_id": "ENGHOOKEY-VAL001",
                        "verifiable": true,
                        "sha256":
"4cb506ef67fe4929df38e06d699140f93452279f602721c99fc1f24cacdf0fbc",
                        "ripemd160": "cc4652bfc2ffb00d81982ddff11a704204fe8c15"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july25.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"e4e56dc8e083167691f6abeb8a2a7b781fea7557a282162a88f84d4d1d169b3b",
            "2ha": "232f98b38f50d7571cdc4786b3628a7fa413c4be",
            "ots_file": "audit_log_SENTINFRA-
SESS002_20250725T001032.263976Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-SESS002_20250725T033234.501790Z.json",
            "meta_id": "SENTINFRA-SESS002",
            "timestamp": "20250725T033234.501790Z",
            "entries": [
                {
                    "timestamp": "2025-07-25T03:32:34.501463Z",
                    "event": "VALIDATOR_REPRODUCIBILITY_PASS",
                    "meta_id": "SENTINFRA-SESS002",
                    "input": {
                        "document_title": "Engineer Validator Reproducibility Pass
\u2013 PreDeployment",
                        "filename": "Screenshot 2025-07-25 at
1.07.52\u202fpm.png___20250725T032248.358543Z",
                        "evidence_path": "evidence_files/Screenshot 2025-07-25 at
1.07.52\u202fpm.png___20250725T032248.358543Z",
                        "sha256_file": "evidence_files/Screenshot 2025-07-25 at
1.07.52\u202fpm.png___20250725T032248.358543Z.hash",
                        "ripemd160_file": "evidence_files/Screenshot 2025-07-25 at
1.07.52\u202fpm.png___20250725T032248.358543Z.2ha",
```

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                    "ots_file": "evidence_files/Screenshot 2025-07-25 at
1.07.52\u202fpm.png___20250725T032248.358543Z.hash.ots",
                    "validator_id": "ENGHOOKEY-VAL001",
                    "payload": "ENGHOOKEY-VAL001|PASS|SENTINFRA-SESS001|
cc4652bfc2ffb00d81982ddff11a704204fe8c15",
                    "txid":
"a5622ac48c93017215a7fb7af6a69bb965220bb3a86e798e721d1f548033a5e3",
                    "block_height": 907041,
                    "session_meta_id": "SENTINFRA-SESS002",
                    "validation_step": "Validator ENGHOOKEY-VAL001 confirms
successful reproducibility audit. File was dual-hashed and OTS-stamped. Anchor
committed to Bitcoin with confirmed payload. Compliant under C5.7, C8.3, and C9.5."
                },
                "output": {
                    "status": "pass",
                    "validator_id": "ENGHOOKEY-VAL001",
                    "txid":
"a5622ac48c93017215a7fb7af6a69bb965220bb3a86e798e721d1f548033a5e3",
                    "block": 907041,
                    "payload": "ENGHOOKEY-VAL001|PASS|SENTINFRA-SESS001|
cc4652bfc2ffb00d81982ddff11a704204fe8c15",
                    "verifiable": true,
                    "sha256":
"f84e96aa1e1b4a58cb9b6cbb79e5e65280e799d250c9b95f755e9a5be859e3e0",
                    "ripemd160": "a72f60e7e129df6a8a4a898ffdffe8ef86a1a56a"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july25.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"f1aad6c24b361afdb540ab8827a703ba8746e1c57b9652da0dc77433649a6ac0",
        "2ha": "ea3a8f156273cf1ee696f8aee525c15b0910617c",
        "ots_file": "audit_log_SENTINFRA-
SESS002_20250725T033234.501790Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-SESS002_20250725T033737.775435Z.json",
        "meta_id": "SENTINFRA-SESS002",
        "timestamp": "20250725T033737.775435Z",
        "entries": [
            {
                "timestamp": "2025-07-25T03:37:37.775062Z",
                "event": "VALIDATOR_REPRODUCIBILITY_PASS",
                "meta_id": "SENTINFRA-SESS002",
                "input": {
                    "document_title": "Medical Validator Reproducibility Pass
\u2013 PreDeployment",
                    "filename": "Screenshot 2025-07-25 at
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1.07.45\u202fpm.png___20250725T033315.889212Z",
                    "evidence_path": "evidence_files/Screenshot 2025-07-25 at
1.07.45\u202fpm.png___20250725T033315.889212Z",
                    "sha256_file": "evidence_files/Screenshot 2025-07-25 at
1.07.45\u202fpm.png___20250725T033315.889212Z.hash",
                    "ripemd160_file": "evidence_files/Screenshot 2025-07-25 at
1.07.45\u202fpm.png___20250725T033315.889212Z.2ha",
                    "ots_file": "evidence_files/Screenshot 2025-07-25 at
1.07.45\u202fpm.png___20250725T033315.889212Z.hash.ots",
                    "validator_id": "DRWOO-VAL001",
                    "payload": "DRWOO-VAL001|PASS|SENTINFRA-SESS001|
a54419605f5cb9fa7ce39dd5716fc18f9d43f464",
                    "txid":
"fd8f0406f4db2bf39d37a825e8dbd554028d72044813bbda864290fa4e88e0b6",
                    "block_height": 907047,
                    "session_meta_id": "SENTINFRA-SESS002",
                    "validation_step": "Validator DRWOO-VAL001 confirms
successful reproducibility audit. File was dual-hashed and OTS-stamped. Anchor
committed to Bitcoin with confirmed payload. Compliant under C5.7, C8.3, and C9.5."
                },
                "output": {
                    "status": "pass",
                    "validator_id": "DRWOO-VAL001",
                    "txid":
"fd8f0406f4db2bf39d37a825e8dbd554028d72044813bbda864290fa4e88e0b6",
                    "block": 907047,
                    "payload": "DRWOO-VAL001|PASS|SENTINFRA-SESS001|
a54419605f5cb9fa7ce39dd5716fc18f9d43f464",
                    "verifiable": true,
                    "sha256":
"9a322b503652df28aaef3dbc7317aebcedc3fd6af1d569f3fb26c6f8c7f1cbbc",
                    "ripemd160": "e01f205a0d528a5a8784b14e9c16ed8f482c48a5"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july25.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"9ac07d545c8ab5603553fdb7783fc65ff70c19295b76e27cb04929838a635ae9",
        "2ha": "ce6acb25c23ab250504145cfa657d292f639a24f",
        "ots_file": "audit_log_SENTINFRA-
SESS002_20250725T033737.775435Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG016_20250728T032642.949640Z.json",
        "meta_id": "SENTINFRA-LOG016",
        "timestamp": "20250728T032642.949640Z",
        "entries": [
            {
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                    "timestamp": "2025-07-28T03:26:42.949338Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG016",
                    "input": {
                        "batch_filenames": [
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.28.51\u202fam.png___20250728T031154.045831Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.29.04\u202fam.png___20250728T031154.046842Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.29.12\u202fam.png___20250728T031154.045966Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.29.27\u202fam.png___20250728T031154.044761Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.29.52\u202fam.png___20250728T031154.045339Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_Screenshot
2025-07-19 at 7.30.18\u202fam.png___20250728T031154.050092Z",
                            "AUDIT-EVIDENCE_DRTELLES-
VAL_REPRODUCIBILITY_SENTINFRA_PreDeployment_sha256_ripemd160_v.july19.25_TerminalOutp
ut_Batch_Re-Hash_Extract_July19.25.md___20250728T031154.045435Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_04_AUDIT-
EVIDENCE_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-SESS002, 7 files, delta=35s.
folder_dual_hash computed and checked.",
                        "delta_seconds": 35,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_04_AUDIT-EVIDENCE_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002",
                        "folder_dual_hash":
"0795cd13e914a12f90df2998f8976105d158e6ed"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july28.25",
                        "ai_editor_LLM_human_agreement": true,
```

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                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"ad7580334d2728f6707f87b26ad524560b10a088e38ec7be49ccb910b6ece756",
        "2ha": "e95b69719c349af90c94bab19e545ab132da1bb2",
        "ots_file": "audit_log_SENTINFRA-LOG016_20250728T032642.949640Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG017_20250728T032702.256334Z.json",
        "meta_id": "SENTINFRA-LOG017",
        "timestamp": "20250728T032702.256334Z",
        "entries": [
            {
                "timestamp": "2025-07-28T03:27:02.256066Z",
                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                "meta_id": "SENTINFRA-LOG017",
                "input": {
                    "batch_filenames": [
                        "audit_log_DRTELLES-
LOG001_20250713T224621.564735Z.json___20250728T031157.919657Z",
                        "audit_log_MVP1-
SR001_20250704T045719.461011Z.json___20250728T031157.901616Z",
                        "audit_log_MVP1-
SR002_20250526T005856.448984Z.json___20250728T031157.919802Z",
                        "audit_log_MVP1-
SR002_20250704T050511.217387Z.json___20250728T031157.906017Z",
                        "audit_log_MVP1-
SR004_20250526T032031.221195Z.json___20250728T031157.907611Z",
                        "audit_log_MVP1-
SR005_20250526T034312.228852Z.json___20250728T031157.910428Z",
                        "audit_log_MVP1-
SR025_20250614T063132.106059Z.json___20250728T031157.910214Z",
                        "audit_log_MVP1-
SR029_20250615T054956.588879Z.json___20250728T031157.931832Z",
                        "audit_log_MVP1-
SR030_20250615T233259.294016Z.json___20250728T031157.920750Z",
                        "audit_log_MVP1-
SR031_20250616T023206.516729Z.json___20250728T031157.915220Z",
                        "audit_log_MVP1-
SR032_20250616T024309.303174Z.json___20250728T031157.912083Z",
                        "audit_log_MVP1-
SR033_20250617T070522.437324Z.json___20250728T031157.922827Z",
                        "audit_log_MVP1-
SR034_20250617T073007.955006Z.json___20250728T031157.908424Z",
                        "audit_log_MVP1-
SR035_20250619T034308.416112Z.json___20250728T031157.919130Z",
                        "audit_log_MVP1-
SR036_20250623T041519.661578Z.json___20250728T031157.931643Z",
                        "audit_log_MVP1-
SR038_20250623T050153.592411Z.json___20250728T031157.924230Z",
                        "audit_log_MVP1-
SR041_20250623T051610.180783Z.json___20250728T031157.899743Z",
                        "audit_log_MVP1-
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SR047_20250624T061128.502561Z.json___20250728T031157.921518Z",
                            "audit_log_MVP1-
SR057_20250701T022809.888350Z.json___20250728T031157.898391Z",
                            "audit_log_MVP1-
SR058_20250701T024226.076182Z.json___20250728T031157.904526Z",
                            "audit_log_MVP1-
SR076_20250701T224228.412884Z.json___20250728T031157.897525Z",
                            "audit_log_MVP1-
SR083_20250704T043256.725227Z.json___20250728T031157.905083Z",
                            "audit_log_MVP1-
SR084_20250704T044646.267182Z.json___20250728T031157.908720Z",
                            "session_log_OPTMZ-
SESS005_20250709T025037.058926Z.json___20250728T031157.920789Z",
                            "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250728T031157.928752Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_05_AUDIT-
EVIDENCE_DRTELLES_processed_originals_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z, 25 files, delta=35s. folder_dual_hash computed
and checked.",
                        "delta_seconds": 35,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_05_AUDIT-
EVIDENCE_DRTELLES_processed_originals_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z",
                        "folder_dual_hash":
"4fe1941f98ba14ca5aef32b60153b902562792c5"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july28.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"b106b8ec7202b213f3324aaf5ed922b585ecc10d960df6e9992daa68d52dea74",
            "2ha": "f5cb3b67020d9453c75ccf99b762062fa4af3368",
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                    "ots_file": "audit_log_SENTINFRA-LOG017_20250728T032702.256334Z.hash.ots"
            },
            {
                "file": "audit_log_SENTINFRA-LOG018_20250728T032714.949792Z.json",
                "meta_id": "SENTINFRA-LOG018",
                "timestamp": "20250728T032714.949792Z",
                "entries": [
                    {
                        "timestamp": "2025-07-28T03:27:14.949552Z",
                        "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                        "meta_id": "SENTINFRA-LOG018",
                        "input": {
                            "batch_filenames": [
                                "audit_log_DRTELLES-
LOG001_20250713T224621.564735Z.json___20250718T210957.135518Z___20250728T031200.92444
7Z",
                                "audit_log_MVP1-
SR001_20250704T045719.461011Z.json___20250718T210933.038335Z___20250728T031200.934612
Z",
                                "audit_log_MVP1-
SR002_20250526T005856.448984Z.json___20250718T210959.156847Z___20250728T031200.927224
Z",
                                "audit_log_MVP1-
SR002_20250704T050511.217387Z.json___20250718T210939.058513Z___20250728T031200.913296
Z",
                                "audit_log_MVP1-
SR004_20250526T032031.221195Z.json___20250718T210941.070567Z___20250728T031200.947201
Z",
                                "audit_log_MVP1-
SR005_20250526T034312.228852Z.json___20250718T210949.107401Z___20250728T031200.911523
Z",
                                "audit_log_MVP1-
SR025_20250614T063132.106059Z.json___20250718T210947.099686Z___20250728T031200.910849
Z",
                                "audit_log_MVP1-
SR029_20250615T054956.588879Z.json___20250718T211017.207237Z___20250728T031200.929500
Z",
                                "audit_log_MVP1-
SR030_20250615T233259.294016Z.json___20250718T211001.171852Z___20250728T031200.918158
Z",
                                "audit_log_MVP1-
SR031_20250616T023206.516729Z.json___20250718T210953.128323Z___20250728T031200.955350
Z",
                                "audit_log_MVP1-
SR032_20250616T024309.303174Z.json___20250718T210951.118546Z___20250728T031200.934051
Z",
                                "audit_log_MVP1-
SR033_20250617T070522.437324Z.json___20250718T211007.187922Z___20250728T031200.940587
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SR034_20250617T073007.955006Z.json___20250718T210943.071826Z___20250728T031200.936236
Z",
                                "audit_log_MVP1-
SR035_20250619T034308.416112Z.json___20250718T210955.130964Z___20250728T031200.951194
Z",
                                "audit_log_MVP1-
SR036_20250623T041519.661578Z.json___20250718T211015.195366Z___20250728T031200.932847
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Z",
                        "audit_log_MVP1-
SR038_20250623T050153.592411Z.json___20250718T211011.296071Z___20250728T031200.927754
Z",
                        "audit_log_MVP1-
SR041_20250623T051610.180783Z.json___20250718T210931.035213Z___20250728T031200.918248
Z",
                        "audit_log_MVP1-
SR047_20250624T061128.502561Z.json___20250718T211005.277064Z___20250728T031200.936983
Z",
                        "audit_log_MVP1-
SR057_20250701T022809.888350Z.json___20250718T210929.028557Z___20250728T031200.919741
Z",
                        "audit_log_MVP1-
SR058_20250701T024226.076182Z.json___20250718T210935.045854Z___20250728T031200.936477
Z",
                        "audit_log_MVP1-
SR076_20250701T224228.412884Z.json___20250718T210927.078737Z___20250728T031200.922134
Z",
                        "audit_log_MVP1-
SR083_20250704T043256.725227Z.json___20250718T210937.058061Z___20250728T031200.942720
Z",
                        "audit_log_MVP1-
SR084_20250704T044646.267182Z.json___20250718T210945.080795Z___20250728T031200.916276
Z",
                        "session_log_OPTMZ-
SESS005_20250709T025037.058926Z.json___20250718T211003.171601Z___20250728T031200.9441
28Z",
                        "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250718T211013.174519Z___20250728T031200.9222
27Z"
                    ],
                    "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                    "session_context": "SENTINFRA-SESS002",
                    "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                    "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                    "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_06_AUDIT-
EVIDENCE_DRTELLES_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z, 25 files, delta=35s. folder_dual_hash computed
and checked.",
                    "delta_seconds": 35,
                    "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                },
                "output": {
                    "status": "verifiable",
                    "verifiable": true,
                    "final_hash_disclosed": false,
                    "audit_type": "REPRODUCIBILITY",
                    "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_06_AUDIT-
EVIDENCE_DRTELLES_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z",
                    "folder_dual_hash":
"4fe1941f98ba14ca5aef32b60153b902562792c5"
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                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july28.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"195cea7a1834831b859fbbe891d59c9b5e94e6144dd5c260e8ac54cf602d45cc",
        "2ha": "5aa30f039b5083f08f0ea280e743831c355fd123",
        "ots_file": "audit_log_SENTINFRA-LOG018_20250728T032714.949792Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG019_20250728T032727.445123Z.json",
        "meta_id": "SENTINFRA-LOG019",
        "timestamp": "20250728T032727.445123Z",
        "entries": [
            {
                "timestamp": "2025-07-28T03:27:27.444879Z",
                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                "meta_id": "SENTINFRA-LOG019",
                "input": {
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LOG001_20250713T224621.564735Z.json___20250718T210957.135518Z.hash.ots___20250728T031
204.998662Z",
                        "audit_log_MVP1-
SR001_20250704T045719.461011Z.json___20250718T210933.038335Z.hash.ots___20250728T0312
05.025460Z",
                        "audit_log_MVP1-
SR002_20250526T005856.448984Z.json___20250718T210959.156847Z.hash.ots___20250728T0312
04.999482Z",
                        "audit_log_MVP1-
SR002_20250704T050511.217387Z.json___20250718T210939.058513Z.hash.ots___20250728T0312
04.993244Z",
                        "audit_log_MVP1-
SR004_20250526T032031.221195Z.json___20250718T210941.070567Z.hash.ots___20250728T0312
04.993542Z",
                        "audit_log_MVP1-
SR005_20250526T034312.228852Z.json___20250718T210949.107401Z.hash.ots___20250728T0312
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SR029_20250615T054956.588879Z.json___20250718T211017.207237Z.hash.ots___20250728T0312
05.016302Z",
                        "audit_log_MVP1-
SR030_20250615T233259.294016Z.json___20250718T211001.171852Z.hash.ots___20250728T0312
05.028108Z",
                        "audit_log_MVP1-
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SR031_20250616T023206.516729Z.json___20250718T210953.128323Z.hash.ots___20250728T0312
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                                "audit_log_MVP1-
SR032_20250616T024309.303174Z.json___20250718T210951.118546Z.hash.ots___20250728T0312
05.012335Z",
                                "audit_log_MVP1-
SR033_20250617T070522.437324Z.json___20250718T211007.187922Z.hash.ots___20250728T0312
05.004057Z",
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SR034_20250617T073007.955006Z.json___20250718T210943.071826Z.hash.ots___20250728T0312
05.002627Z",
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SR057_20250701T022809.888350Z.json___20250718T210929.028557Z.hash.ots___20250728T0312
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05.017948Z",
                                "audit_log_MVP1-
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05.019635Z",
                                "audit_log_MVP1-
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05.010626Z",
                                "audit_log_MVP1-
SR084_20250704T044646.267182Z.json___20250718T210945.080795Z.hash.ots___20250728T0312
05.017643Z",
                                "session_log_OPTMZ-
SESS005_20250709T025037.058926Z.json___20250718T211003.171601Z.hash.ots___20250728T03
1205.001976Z",
                                "session_log_OPTMZ-
SESS009_20250709T053543.889521Z.json___20250718T211013.174519Z.hash.ots___20250728T03
1205.009866Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_09_AUDIT-
EVIDENCE_DRTELLES_ots_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z, 25 files, delta=35s. folder_dual_hash computed

and checked.",
                            "delta_seconds": 35,
                            "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                        },
                        "output": {
                            "status": "verifiable",
                            "verifiable": true,
                            "final_hash_disclosed": false,
                            "audit_type": "REPRODUCIBILITY",
                            "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_09_AUDIT-
EVIDENCE_DRTELLES_ots_ARCHITECT_VALIDATOR_AUDIT_SENTINFRA-
SESS002_BATCH-20250718T210927.076084Z",
                            "folder_dual_hash":
"86a2b7705ea8c3dbeac4fd4e1bf1c5763546f6fc"
                        },
                        "audit": {
                            "AI_used": true,
                            "LLM_used": "LLM1",
                            "human_verified": true,
                            "module_version": "v.july28.25",
                            "ai_editor_LLM_human_agreement": true,
                            "VALIS_template_enforced": true,
                            "AI_override": false
                        },
                        "timestamp_confirmed": true
                    }
                ],
                "sha256":
"6e99740f6c871f0fc3c2cd4c260fb3c35e2d9cd7a9289a57779f9a926edabf5a",
                "2ha": "8fa328c85f5f9aa30ce3ebf6690e01351aaa6288",
                "ots_file": "audit_log_SENTINFRA-LOG019_20250728T032727.445123Z.hash.ots"
            },
            {
                "file": "audit_log_SENTINFRA-LOG020_20250728T032738.625875Z.json",
                "meta_id": "SENTINFRA-LOG020",
                "timestamp": "20250728T032738.625875Z",
                "entries": [
                    {
                        "timestamp": "2025-07-28T03:27:38.625525Z",
                        "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                        "meta_id": "SENTINFRA-LOG020",
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                                "0443DE66-88F5-47B8-
BCC1-0A4530AB82AE.JPEG___20250728T031207.705498Z",

"0F70381A-055D-494C-8E34-1B1B6860454B.JPEG___20250728T031207.710516Z",
                                "162BD93C-8822-43DA-
B5E6-0742A135E52F.JPEG___20250728T031207.701696Z",

"1E2F0689-5D11-4335-8B6F-7D13BBC88390.JPEG___20250728T031207.711806Z",
                                "245068D5-21FA-471A-ACB7-
D5F531B80EF6.JPEG___20250728T031207.705088Z",
                                "43EA5D20-
DED9-47F2-98D0-7BA787EF8E4D.JPEG___20250728T031207.709643Z",

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                            "7CBF6AA7-9A1F-45EE-AAB3-
FF91C81DE2DD.JPEG___20250728T031207.704216Z",
                            "BCF581D7-64A4-4CF9-A666-E1125B9475C7
2.JPEG___20250728T031207.703111Z",
                            "BCF581D7-64A4-4CF9-A666-
E1125B9475C7.JPEG___20250728T031207.707590Z",
                            "C150E5FA-60E0-42C3-
B1B6-8176469E9DC9.JPEG___20250728T031207.712564Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_10_Screenshots_SENTINFRA-SESS001, 10 files,
delta=35s. folder_dual_hash computed and checked.",
                        "delta_seconds": 35,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_10_Screenshots_SENTINFRA-SESS001",
                        "folder_dual_hash":
"3e141b80de4caaea02ec5ef72e4a8c5d25eb00c4"
                    },
                    "audit": {
                        "AI_used": true,
                        "LLM_used": "LLM1",
                        "human_verified": true,
                        "module_version": "v.july28.25",
                        "ai_editor_LLM_human_agreement": true,
                        "VALIS_template_enforced": true,
                        "AI_override": false
                    },
                    "timestamp_confirmed": true
                }
            ],
            "sha256":
"281892f60f240e05d17c7cf3b6628b6ee9ded640f1fa210eb4fe3245dec21e78",
            "2ha": "aa71bb1611fce96cdf60137f21b1b7649b5ade32",
            "ots_file": "audit_log_SENTINFRA-LOG020_20250728T032738.625875Z.hash.ots"
        },
        {
            "file": "audit_log_SENTINFRA-LOG021_20250728T032800.504091Z.json",
            "meta_id": "SENTINFRA-LOG021",
            "timestamp": "20250728T032800.504091Z",
            "entries": [
                {
                    "timestamp": "2025-07-28T03:28:00.503634Z",
                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG021",
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                "input": {
                    "batch_filenames": [
                        ".DS_Store___20250728T031210.341001Z",
                        "AUDIT-
EVIDENCE_VALIDATORS_REPRODUCIBILITY_SENTINFRA_PreDeployment_opentimestamps_OTS_v.july
23.25.md___20250728T031210.342440Z",
                        "hash_audit_report_DRWOO-VAL_AUDIT_SENTINFRA-
SESS001.csv___20250728T031210.341573Z",
                        "hash_audit_report_ENGHOOKEY-VAL_SENTINFRA-
SESS001.csv___20250728T031210.343234Z"
                    ],
                    "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                    "session_context": "SENTINFRA-SESS002",
                    "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                    "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                    "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_11_AUDIT-EVIDENCE_INDEPENDENT_VALIDATORS, 4 files,
delta=35s. folder_dual_hash computed and checked.",
                    "delta_seconds": 35,
                    "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                },
                "output": {
                    "status": "verifiable",
                    "verifiable": true,
                    "final_hash_disclosed": false,
                    "audit_type": "REPRODUCIBILITY",
                    "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_11_AUDIT-EVIDENCE_INDEPENDENT_VALIDATORS",
                    "folder_dual_hash":
"951896dd9d771ef4f8d16a6542bc5feb8b6b90b9"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july28.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"c34c893f48ba12cd7e329a0b8bf2afb06f139d30892d6e534082f126affcfac3",
        "2ha": "2ef1d0d0c7cbc0ba88b4087ec4740286f8fe4d87",
        "ots_file": "audit_log_SENTINFRA-LOG021_20250728T032800.504091Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG022_20250728T032815.551840Z.json",
        "meta_id": "SENTINFRA-LOG022",
        "timestamp": "20250728T032815.551840Z",
        "entries": [
            {
                "timestamp": "2025-07-28T03:28:15.551556Z",
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                    "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                    "meta_id": "SENTINFRA-LOG022",
                    "input": {
                        "batch_filenames": [
                            ".DS_Store___20250728T031212.502435Z",
                            "BatchStream_Instructions
canonical_auditlogger_terminal_template.py.md___20250728T031212.510092Z",

"C5.8_HashValidatorBlock_ExecutionRules_v1.0.md___20250728T031212.511239Z",

"C8.6_LivestreamModule_v1.0.md___20250728T031212.506228Z",

"C9.2_Strategic_Publishing_Doctrine_SentinelProtocol_v1.1.md___20250728T031212.512248
Z",

"C9.6_SIASE_Tier1_AI_HumanAuditExecution_v1.0.md___20250728T031212.512676Z",

"C9.7_MetaID_ValidatorMap_v1.0.md___20250728T031212.510826Z",

"C9.8.1_Local_LLM_Training_Blueprint_v2.0.md___20250728T031212.502310Z",
                            "C9.8_meta-analysis.ai_Multi-
LLM_Orchestration_Hybrid_Software_LocalLLMvalidation_Blueprint_v1.0.md___20250728T031
212.511891Z",

"LiveStream_Instructions_canonical_auditlogger_terminal_livestream_template.py.md___2
0250728T031212.507927Z",

"Updated_C8.3_REWIRED_v.july21.25.md___20250728T031212.512880Z",

"Updated_C8.5_BatchEvidenceAgreementProtocol_vjuly21.25.md___20250728T031212.500131Z"
,

"batchstream_canonical_auditlogger_terminal_template.py___20250728T031212.501544Z",

"livestream_canonical_auditlogger_terminal_template.py___20250728T031212.516280Z",

"opreturn_anchor_terminal_template.py.md___20250728T031212.507815Z"
                        ],
                        "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                        "session_context": "SENTINFRA-SESS002",
                        "batch_screenshot_pre": "BATCH_PRE_20250728T031150Z.png",
                        "batch_screenshot_post": "BATCH_POST_20250728T031225Z.png",
                        "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
SENTINFRA-SESS002_batch_evidence_12_SentinelProtocolv3.1_updated_modules, 15 files,
delta=35s. folder_dual_hash computed and checked.",
                        "delta_seconds": 35,
                        "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                    },
                    "output": {
                        "status": "verifiable",
                        "verifiable": true,
                        "final_hash_disclosed": false,
                        "audit_type": "REPRODUCIBILITY",
                        "meta_id": "SENTINFRA-LOG-SENTINFRA-
SESS002_batch_evidence_12_SentinelProtocolv3.1_updated_modules",
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                    "folder_dual_hash":
"269b00e54239fdd7154b93add28341999f92d416"
                },
                "audit": {
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                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july28.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"a9c200d700c613149c6a7e99690a9287d869dc547f73d17fef7910be27e1ae42",
        "2ha": "fe97cdbb2c2aef718f5e5a98244d569f651fa833",
        "ots_file": "audit_log_SENTINFRA-LOG022_20250728T032815.551840Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-SESS002_20250728T034527.491779Z.json",
        "meta_id": "SENTINFRA-SESS002",
        "timestamp": "20250728T034527.491779Z",
        "entries": [
            {
                "timestamp": "2025-07-28T03:45:27.491458Z",
                "event": "VALIDATOR_REPRODUCIBILITY_PASS",
                "meta_id": "SENTINFRA-SESS002",
                "input": {
                    "document_title": "SENTINFRA-SESS001 \u2013 Final Multi-
Validator Reproducibility Audit Log",
                    "filename": "AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-
SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z"
,
                    "evidence_path": "/Users/rosmontos/
Sentinel_Infrastructure_MVP-01_Auditability_And_Provenance/validation_live_stream/
SENTINFRA-SESS002/july28_2025_AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-SESS001/
frozen_files_BATCH-20250728T033533.106929Z/AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-
SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z"
,
                    "sha256_file": "/Users/rosmontos/
Sentinel_Infrastructure_MVP-01_Auditability_And_Provenance/validation_live_stream/
SENTINFRA-SESS002/july28_2025_AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-SESS001/
frozen_files_BATCH-20250728T033533.106929Z/AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-
SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z.
hash",
                    "ripemd160_file": "/Users/rosmontos/
Sentinel_Infrastructure_MVP-01_Auditability_And_Provenance/validation_live_stream/
SENTINFRA-SESS002/july28_2025_AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-SESS001/
frozen_files_BATCH-20250728T033533.106929Z/AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-
SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z.
2ha",
                    "ots_file": "/Users/rosmontos/
Sentinel_Infrastructure_MVP-01_Auditability_And_Provenance/validation_live_stream/
SENTINFRA-SESS002/july28_2025_AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-SESS001/
frozen_files_BATCH-20250728T033533.106929Z/AUDIT_REPRODUCIBILITY_PASS_SENTINFRA-
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SESS001_sha256_ripemd160_opentimestamps_OTS_v.july25.25.md___20250728T033533.108012Z.
hash.ots",
                            "validator_ids": [
                                "DRTELLES-VAL001",
                                "DRWOO-VAL001",
                                "ENGHOOKEY-VAL001"
                            ],
                            "validator_payloads": [
                                "DRTELLES-VAL001|PASS|SENTINFRA-SESS001|
05cea9a984e521547de3a405b79fd93c769424fe",
                                "DRWOO-VAL001|PASS|SENTINFRA-SESS001|
a54419605f5cb9fa7ce39dd5716fc18f9d43f464",
                                "ENGHOOKEY-VAL001|PASS|SENTINFRA-SESS001|
cc4652bfc2ffb00d81982ddff11a704204fe8c15"
                            ],
                            "txids": [

"ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0",

"fd8f0406f4db2bf39d37a825e8dbd554028d72044813bbda864290fa4e88e0b6",

"a5622ac48c93017215a7fb7af6a69bb965220bb3a86e798e721d1f548033a5e3"
                            ],
                            "block_heights": [
                                906434,
                                907047,
                                907041
                            ],
                            "session_meta_id": "SENTINFRA-SESS002",
                            "validation_step": "All validator payloads, dual-hash
digests, and OTS files validated. Bitcoin OP_RETURN anchors confirmed for all three
validator submissions. Final `.2ha` manifest issued under C5.7, C8.3, and C9.5."
                        },
                    "output": {
                            "status": "reproducibility_pass",
                            "verifiable": true,
                            "anchored": true,
                            "validator_payloads": [
                                "DRTELLES-VAL001|PASS|SENTINFRA-SESS001|
05cea9a984e521547de3a405b79fd93c769424fe",
                                "DRWOO-VAL001|PASS|SENTINFRA-SESS001|
a54419605f5cb9fa7ce39dd5716fc18f9d43f464",
                                "ENGHOOKEY-VAL001|PASS|SENTINFRA-SESS001|
cc4652bfc2ffb00d81982ddff11a704204fe8c15"
                            ],
                            "txids": [

"ccf9dc6dde2136b5e2adf035532233cfee255fb3704f8f5838b0de730f41eca0",

"fd8f0406f4db2bf39d37a825e8dbd554028d72044813bbda864290fa4e88e0b6",

"a5622ac48c93017215a7fb7af6a69bb965220bb3a86e798e721d1f548033a5e3"
                            ],
                            "block_heights": [
                                906434,
                                907047,
                                907041
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                    ],
                    "sha256":
"63e04b6db078dcf6eb5550e184926fdf5b0437fdd7d8e8091d4667baeb2c237b",
                    "ripemd160": "ab22d1064bfef22495b6870c03fa4c237fddd7e5"
                },
                "audit": {
                    "AI_used": true,
                    "LLM_used": "LLM1",
                    "human_verified": true,
                    "module_version": "v.july28.25",
                    "ai_editor_LLM_human_agreement": true,
                    "VALIS_template_enforced": true,
                    "AI_override": false
                },
                "timestamp_confirmed": true
            }
        ],
        "sha256":
"35c82f242ab20b3c20c8d9dd48ba31d78061275d2465893da7a4ee25739fd5a5",
        "2ha": "1608433eafa81cdc8cdc5a5381e9c06e1740e87d",
        "ots_file": "audit_log_SENTINFRA-
SESS002_20250728T034527.491779Z.hash.ots"
    },
    {
        "file": "audit_log_SENTINFRA-LOG023_20250728T035155.068927Z.json",
        "meta_id": "SENTINFRA-LOG023",
        "timestamp": "20250728T035155.068927Z",
        "entries": [
            {
                "timestamp": "2025-07-28T03:51:55.068673Z",
                "event": "AUDIT_BATCH_EVIDENCE_VERIFIED",
                "meta_id": "SENTINFRA-LOG023",
                "input": {
                    "batch_filenames": [
                        ".DS_Store___20250728T034807.446137Z",
"4239baa91fee5872e4654fc61a8c89839b04791da3d3c9e86533614e6947e68b
2.JPG___20250728T034807.472090Z",
                        "Screenshot 2025-07-20 at
12.08.57\u202fpm.png___20250728T034807.461901Z",
                        "Screenshot 2025-07-20 at
12.10.01\u202fpm.png___20250728T034807.466571Z",
                        "Screenshot 2025-07-20 at
12.10.38\u202fpm.png___20250728T034807.446389Z",
                        "Screenshot 2025-07-20 at
12.27.08\u202fpm.png___20250728T034807.478307Z",
                        "Screenshot 2025-07-20 at
12.35.38\u202fpm.png___20250728T034807.466069Z",
                        "Screenshot 2025-07-20 at
12.36.10\u202fpm.png___20250728T034807.447715Z",
                        "Screenshot 2025-07-20 at
12.36.26\u202fpm.png___20250728T034807.453759Z",
                        "Screenshot 2025-07-20 at
12.36.34\u202fpm.png___20250728T034807.450427Z",
                        "Screenshot 2025-07-20 at
12.46.53\u202fpm.png___20250728T034807.454158Z",
                        "Screenshot 2025-07-22 at
```

8.56.52\u202fam.png___20250728T034807.466484Z",
                              "Screenshot 2025-07-22 at
8.57.30\u202fam.png___20250728T034807.455576Z",
                              "Screenshot 2025-07-25 at
1.22.39\u202fpm.png___20250728T034807.447484Z",
                              "Screenshot 2025-07-25 at
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                              "Screenshot 2025-07-25 at
1.33.09\u202fpm.png___20250728T034807.475787Z",
                              "Screenshot 2025-07-25 at
1.33.52\u202fpm.png___20250728T034807.467136Z",
                              "Screenshot 2025-07-25 at
9.16.50\u202fam.png___20250728T034807.457485Z",
                              "Screenshot 2025-07-25 at
9.17.31\u202fam.png___20250728T034807.447266Z",
                              "Screenshot 2025-07-28 at
1.11.50\u202fpm.png___20250728T034807.477785Z",
                              "Screenshot 2025-07-28 at
1.12.25\u202fpm.png___20250728T034807.459714Z",
                              "Screenshot 2025-07-28 at
1.35.27\u202fpm.png___20250728T034807.453856Z",
                              "Screenshot 2025-07-28 at
1.35.54\u202fpm.png___20250728T034807.463325Z",

"c2b79bcc2de688906400b3f862a7a16112907cad0478f5bc42eec4da7df49b96
2.JPG___20250728T034807.465524Z"
                          ],
                          "evidence_type": "SHA256-RIPEMD160 reproducibility
(deferred)",
                          "session_context": "SENTINFRA-SESS002",
                          "batch_screenshot_pre": "BATCH_PRE_20250728T034757Z.png",
                          "batch_screenshot_post": "BATCH_POST_20250728T034826Z.png",
                          "validation_step": "VALIS v2.4 enforcement active. Meta-ID:
Screenshots_SENTINFRA-SESS002, 24 files, delta=29s. folder_dual_hash computed and
checked.",
                          "delta_seconds": 29,
                          "executed_template": "valis_batchauditlogger_template.py
(v2.4)"
                      },
                      "output": {
                          "status": "verifiable",
                          "verifiable": true,
                          "final_hash_disclosed": false,
                          "audit_type": "REPRODUCIBILITY",
                          "meta_id": "SENTINFRA-LOG-Screenshots_SENTINFRA-SESS002",
                          "folder_dual_hash":
"a2cbf17f2734ac6cb476991b730d8ae16db48ac5"
                      },
                      "audit": {
                          "AI_used": true,
                          "LLM_used": "LLM1",
                          "human_verified": true,
                          "module_version": "v.july28.25",
                          "ai_editor_LLM_human_agreement": true,
                          "VALIS_template_enforced": true,
                          "AI_override": false
                      },

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                "timestamp_confirmed": true
            }
        ],
        "sha256":
"25b2998d5670002ef237ab84ed4593552e89ff3f3a357b84c8c3096145d5c92c",
        "2ha": "ca874197a16e9fa00931001f103be701e0d26fca",
        "ots_file": "audit_log_SENTINFRA-LOG023_20250728T035155.068927Z.hash.ots"
    }
  ]
}
```

References

1. Telles, Fernando. Sentinel Protocol v3.0 – AI–Human Synergy™ Infrastructure Technical Summary for Intellectual Property & Strategic Briefing. CDA AI Pty Ltd, June 2025. https://doi.org/10.13140/RG.2.2.20488.12803.
2. OpenTimestamps Project. OpenTimestamps: A Scalable Timestamping Protocol. Available at: https://opentimestamps.org. Accessed July 29, 2025.
3. Ordinal Theory Handbook. Ordinal Inscriptions on Bitcoin. Available at: https://docs.ordinals.com. Accessed July 29, 2025.