DigiEmu Core Audit & Verification Framework v1.0

Status: Normative Supporting Framework – Enterprise Edition
Scope: Auditability & Deterministic Verification Controls
Date: 2026-02-17

1. Purpose

This document defines the audit and verification framework for DigiEmu Core implementations. It establishes formal procedures for validating snapshot reproducibility, hash integrity, and immutability enforcement.

2. Audit Scope

Audit procedures SHALL verify:
• Deterministic snapshot reconstruction
• Canonical serialization compliance
• SHA-256 hash reproducibility
• Immutable entity enforcement
• Tenant boundary integrity.

3. Snapshot Reproducibility Verification

Auditors MUST rebuild snapshot payloads from stored immutable entities. Recomputed canonical payload and SHA-256 hash MUST match stored values without deviation.

4. Hash Validation Procedure

Audit validation SHALL include independent recomputation of snapshot hashes. Any mismatch SHALL be classified as integrity violation and trigger investigation.

5. Tamper Detection Controls

Systems MUST detect and log any unauthorized mutation attempts. Mutation of committed ContentVersion or Snapshot entities SHALL invalidate integrity guarantees.

6. Audit Logging Requirements

Implementations SHALL maintain verifiable audit logs covering:
• Version creation events
• Snapshot generation events
• Hash computation records
• Access control events.

7. External Audit Support

Certified implementations MUST provide controlled test environments or reproducible datasets to authorized auditors upon request.

8. Regulatory Alignment

The audit framework supports traceability and reconstruction requirements for regulated AI systems. It enables independent verification of deterministic knowledge handling.

9. Certification Integration

Successful audit verification is a prerequisite for Level 2 and Level 3 Conformance and Enterprise Certification eligibility.

10. Governance & Version Alignment

Audit procedures SHALL remain aligned with the DigiEmu Versioning & Stability Policy. Changes to snapshot logic require updated audit validation procedures.