

DigiEmu Core Certification Technical Requirements v1.0

Status: Normative Supporting Framework – Enterprise Edition

Scope: Technical Certification Criteria

Date: 2026-02-17

1. Purpose

This document defines the mandatory technical criteria required for certification under the DigiEmu Core Certification Policy. It establishes measurable validation standards for enterprise implementations.

2. Certification Levels

Level 1 – Deterministic Snapshot Compliance

Level 2 – Audit & Verification Compliance

Level 3 – Enterprise Governance Compliance

Each level builds cumulatively upon the previous level.

3. Determinism Validation Requirements

Certified systems **MUST** demonstrate deterministic snapshot generation, canonical serialization compliance, and SHA-256 hash reproducibility across independent validation environments.

4. Hash Integrity Verification

Implementations **MUST** provide reproducible hash validation procedures. Independent recomputation **MUST** produce byte-identical SHA-256 outputs.

5. Immutability Enforcement

ContentVersion and Snapshot entities **MUST** be immutable once committed. Database-level constraints or equivalent enforcement mechanisms **MUST** prevent retroactive mutation.

6. State Reconstruction Capability

Certified systems **MUST** reconstruct historical knowledge states from immutable stored entities. Reconstruction **MUST** yield identical canonical payload and hash values.

7. Tenant Isolation Verification

Multi-tenant implementations **MUST** enforce strict data boundaries. Cross-tenant mutation or data exposure **SHALL** invalidate certification.

8. Testing & Evidence Requirements

Certification applicants **MUST** provide:

- Determinism test results
- Hash validation logs
- Architecture documentation
- Security model summary
- Version alignment declaration.

9. Security & Operational Controls

Enterprise-level certification requires documented access control policies, secure deployment practices, and operational monitoring procedures supporting snapshot verification.

10. Governance Alignment

Certification eligibility requires alignment with the DigiEmu Governance & Versioning Policies. Major specification updates require recertification review.