Deterministic Evaluation Architecture

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1. Purpose

Describes the deterministic evaluation model implemented within CREDA Systems. Defines canonical input processing, rule identity binding, invariant execution, and replay validation.

2. Canonical Input Processing

All evaluation inputs are transformed into canonical serialized form prior to execution. Evaluation SHALL NOT occur on non-canonical input. Canonicalization normalizes ordering, removes environment variance, and produces a Canonical Evidence Hash.

3. Rule Version Binding

Each evaluation is bound to a specific Rule Version Identity. Execution context prevents ambiguous references and retroactive mutation. Rule identity is persisted within the conformity artifact.

4. Invariant Execution

Invariant definitions execute under deterministic runtime context. Identical canonical input MUST produce identical invariant outcome. No discretionary override path exists.

5. Conformity Artifact Construction

Each evaluation produces an artifact containing Canonical Evidence Hash, Rule Version Identity, Invariant Definition Hash, Conformity State Indicator, and Artifact Hash. Artifact Hash is deterministically derived from structured components.

6. Replay Validation

CREDA Systems supports deterministic replay validation under identical inputs and rule identity. Replay mismatch invalidates evaluation integrity.