

ImageInsight – Knowledge Base (KB-03)

ImageInsight **Knowledge Base 03** expands the system with eight configurable enhancements. This **Knowledge Base** builds on **Knowledge Base 02** by introducing fusion-based algorithms, context-aware similarity, TPU support, and richer governance/audit controls.

Hybrid Feature Fusion

- Label: Feature Fusion Mode
- Field: similarity.fusion.mode
- Configuration: Weighted|Stacked Auto (default: Weighted), configurable weights for SIFT/ORB/SuperPoint.
- Details: Improves robustness by fusing multiple feature descriptors in one pipeline.

Context-Aware Similarity

- Label: Contextual Metric
- Field: similarity.context.metric
- Configuration: LPIPS|FSIM | Hybrid (default: Hybrid), auto-selects metric based on image domain (medical, natural, synthetic).
- Details: Extends KB-02 metrics by adding context-aware selection for domain-specific accuracy.

GPU/TPU Auto-Switching

- Label: Acceleration Device
- Field: runtime.acceleration.device
- Configuration: CPU GPU TPU Auto (default: Auto), fallback hierarchy configurable.
- Details: Improves over KB-02 distributed GPU scaling with TPU support.

Pipeline Orchestration

- Label: Pipeline Orchestrator

- Field: preprocess.pipeline.orchestrator
- Configuration: DAG-based orchestration with dependency rules and failure handling policies.
- Details: Expands plugin-based preprocessing (KB-02) into orchestrated multi-step pipelines.

Granular Redaction Policies

- Label: Redaction Granularity
- Field: compliance.redaction.level
- Configuration: none low medium high (default: medium), customizable by object class and confidence level.
- Details: Refines KB-02 redaction by introducing multiple sensitivity levels.

Result Retention Profiles

- Label: Retention Profile
- Field: governance.retention.profile
- Configuration: short_term|standard|long_term, mapped to 30/90/365 days (override supported).
- Details: Improves retention policy from KB-02 by providing pre-defined governance profiles.

Audit Log Encryption

- Label: Audit Security
- Field: governance.audit.encryption
- Configuration: AES256|RSA2048|None (default: AES256).
- Details: Extends audit logging (KB-02) with in-transit and at-rest encryption options.

Interactive Dashboard

- Label: Dashboard Mode
- Field: ui.dashboard.mode
- Configuration: basic|advanced|developer (default: basic).

- Details: Introduces configurable dashboards for visualizing comparisons, history, and governance settings.