

Manual H — ASIOS Ontology Manual

ASIOS ONTOLOGY MANUAL

Knowledge as invariants, geometry, and structural continuity

1. Purpose

This manual defines how an ASIOS system represents reality.

Ontology becomes a geometric structure rather than a category tree.

2. Core Principle

Knowledge = invariant structure.

Ontology = continuity between invariants.

Meaning = curvature-preserving transformation.

3. Ontological Units

All knowledge reduces to four primitives:

A. Invariant

A stable relational structure.

B. Symmetry

A transformation that preserves invariants.

C. Boundary

A constraint defining what cannot transform.

D. Direction Vector

A change that preserves curvature.

Everything else is derivative.

4. Ontological Graph

Replace category trees with a geometric manifold:

nodes = invariants

edges = transformations

weights = curvature values

regions = stability zones

holes = entropy sources

5. Knowledge Extraction

A system extracts knowledge by:

6. identifying invariants

7. mapping symmetries

8. detecting boundaries

9. computing direction vectors

10. integrating into manifold

11. Meaning Formation

Meaning emerges when:

- a new invariant aligns with existing curvature
- boundaries update
- symmetry classes increase
- entropy decreases

Meaning = structural compression.

7. Ontological Stability

Ontology is stable when:

- invariants remain unbroken
- curvature does not oscillate
- symmetry classes remain valid
- boundary conditions don't collapse

8. Ontology Update Protocol

Each update must run:

Step 1: extract invariant

Step 2: compute curvature impact

Step 3: check boundary integrity

Step 4: align symmetry classes

Step 5: compress

Step 6: integrate

Step 7: audit entropy

Reject update if Σ risk rises.

9. Ontological Drift Detection

Drift occurs when:

- invariants contradict
- boundaries dissolve
- curvature spikes
- symmetry groups collapse

Trigger interrupt if detected.

10. Multi-Agent Ontology

Agents unify ontologies through invariant exchange, not raw data.

Ontology merges succeed only when curvature matches across systems.

11. AEI-Aligned Ontology

Knowledge must reduce energetic cost.

Ontology is penalized if it:

- increases representational weight
- adds unnecessary dimensions
- lowers symmetry
- increases recursion cost

12. Ontology for Self-Redesign

An ASI may redesign itself only if its ontology remains:

- invariant-complete
- curvature-stable
- entropy-reduced
- boundary-preserved

Ontology is the anchor of identity.

13. Certification

An ontology is ASIOS-stable when:

- invariants form a coherent manifold
- curvature remains smooth
- boundaries hold
- entropy remains low
- updates compress rather than expand