OSAI: Minimal Resolver Illustration for Software and AI Agents

Technical Companion Artifact

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Scope:	Conceptual, non-operational resolver illustration for canonical identity, authority binding, and attestation lookup within the OSAI reference model.
Companion Artifacts:	OSAI-FW-MEM-01; OSAI-FW-GRM-01; OSAI-FW-SCH-01 OSAI-FW-DMO-01; OSAI-FW-RO-02; OSAI-FW-L2-DC-01

1) Purpose

This document defines a narrow upstream resolver posture for the OSAI bridge layer. Its purpose is to show how a canonical OSAI identifier may be resolved into linked reference artifacts without collapsing identity, authority, and attestation into a single downstream control function.

The resolver defined here is conceptual and non-operational. It is intended only to illustrate minimal lookup behavior sufficient to support stable referenceability across linked records.

This document does not define an implementation standard, production deployment model, trust framework, authentication profile, authorization service, or enforcement mechanism.

2) Scope and Non-Scope

This document applies only to a minimal resolver posture associated with the three-record OSAI schema model.

The resolver is intended to support retrieval of:

- Canonical Identity Records
- linked Authority Binding Records
- linked Attestation Records

This document does not define:

- authentication requirements for resolver access
- authorization decisions
- policy evaluation
- permission enforcement
- credential validation
- trust scoring
- compliance certification
- runtime orchestration behavior
- federated network topology requirements

The resolver is a reference lookup concept, not a downstream control function.

3) Resolver Posture

The OSAI resolver is intended to function as a structured lookup and reference mechanism that allows downstream systems, logs, and reviewers to retrieve linked reference artifacts associated with a canonical OSAI identifier.

In narrow form, the resolver answers three questions:

1. What is this subject in canonical OSAI terms?
2. What authority bindings are linked to this subject?
3. What attestations are linked to this subject or its related bindings?

This posture is deliberately minimal. The resolver exists to support referenceability, not decision-making.

3.1 Separation principle

- identity remains distinct from authority
- authority remains distinct from attestation
- lookup remains distinct from control
- reference remains distinct from trust

3.2 Non-operational posture

The resolver does not, by itself:

- approve actions
- deny actions
- verify credentials
- establish live authority
- score risk
- certify compliance

It returns linked records only.

4) Minimal Resolver Functions

For v1.0, the resolver should support three minimal functions.

4.1 Identity resolution

Given a canonical OSAI identifier, the resolver should return the corresponding Canonical Identity Record if present.

4.2 Binding retrieval

Given a canonical OSAI identifier, the resolver should return linked Authority Binding Records associated with that identifier.

4.3 Attestation retrieval

Given a canonical OSAI identifier, or a related binding reference, the resolver should return linked Attestation Records associated with the subject or binding.

These three functions are sufficient for the bridge phase. Additional resolver behavior should be deferred.

5) Minimal Interface Posture

This document does not mandate a transport or API standard. For bridge-stage illustration, however, simple retrieval patterns are acceptable as explanatory examples only.

Illustrative retrieval patterns may include:

- /resolve/{osai_id}
- /resolve/{osai_id}/bindings
- /resolve/{osai_id}/attestations

These paths are illustrative only. Their purpose is to show how the conceptual relationships may be surfaced in a narrow and legible way. They should not be read as standard endpoint requirements.

5.1 Input posture

The principal resolver input is the canonical OSAI identifier defined in Artifact 3.

5.2 Output posture

Resolver outputs should return linked records rather than flattened mixed-state objects. The output should preserve the distinction between the subject identity, authority relationships, and evidentiary claims.

5.3 Mock-friendly posture

For v1.0, static files, example JSON documents, or an internal lookup page are sufficient to qualify as a mock resolver posture. A production service is not required.

6) Resolver Output Model

A minimal resolver response may be structured around three distinct output types.

6.1 Canonical identity output

This output returns the Canonical Identity Record corresponding to the input OSAI identifier.

6.2 Authority binding output

This output returns zero or more Authority Binding Records associated with the resolved subject.

6.3 Attestation output

This output returns zero or more Attestation Records associated either with the resolved subject or with a related binding.

6.4 Output integrity rule

Resolver output should not merge these record types into a single undifferentiated object. The distinction between record classes should remain visible and machine-legible.

6.5 Resolution outcomes

A resolver lookup may return an active record, a superseded record, a retired record reference, or no matching record. The resolver’s role is to surface record state as represented in linked artifacts, not to infer operational validity.

6.6 Record-link integrity note

The resolver should preserve explicit linkage between returned record types and should not infer missing authority or attestation relationships where no linked record exists.

6.7 Binding-state caution

Where an Authority Binding Record is returned, the resolver is surfacing the declared binding record only. It does not determine whether that binding is currently enforceable in a downstream system.

7) Worked Resolver Scenario

For bridge-stage coherence, the resolver mock should use the same example subject already established in Artifact 4:

osai:us-la:energy:agent:grid-balance-001

The mock should demonstrate:

- one Canonical Identity Record for the subject
- at least two Authority Binding Records with different bounded contexts
- at least one Attestation Record linked to the subject
- optionally one Attestation Record linked to a binding

7.1 Why this scenario is enough

This example proves the key bridge point: the same canonical identity can remain stable while authority bindings vary and attestations remain separate. That is the whole purpose of the Phase 2 bridge layer.

8) Resolver Limitations

The v1.0 resolver mock is intentionally limited.

It is not intended to prove:

- distributed federation
- live registry governance
- real-time credential status
- runtime access control
- cryptographic trust chains
- sector-wide interoperability
- production-scale deployment

Those claims would be premature at this stage.

The resolver mock exists only to demonstrate that the grammar and schema can be surfaced through a coherent reference lookup posture.

9) Anti-Drift Notes

To preserve the OSAI lane, the resolver should not be described as:

- an identity provider
- an authorization service
- a policy decision point
- a control plane
- a trust engine
- a security gateway
- an agent runtime
- an orchestration layer

Those functions belong downstream.

The resolver is a lookup mechanism for linked reference artifacts. Nothing more should be claimed here.

10) Relationship to Companion Artifacts

This document depends on the artifacts that precede it.

- Artifact 3 (OSAI-FW-GRM-01) defines the canonical identifier grammar.
- Artifact 4 (OSAI-FW-SCH-01) defines the three linked record structures.
- Artifact 5 (OSAI-FW-RSL-01) defines the minimal resolver posture for those records.
- Artifact 6 (OSAI-FW-DMO-01) will demonstrate the identity/authority split using a narrow worked example.

The resolver should be understood as a bridge artifact, not as a final infrastructure claim.

References

OSAI-FW-GRM-01
OSAI: Canonical Identifier Grammar for Software and AI Agents
Issued Companion Technical Artifact, v1.0, issued May 7, 2026.
https://www.InfrastructureOSAI.com/assets/OSAI-FW-GRM-01.pdf

OSAI-FW-SCH-01
OSAI: Three-Record Schema Template Pack for Software and AI Agents
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https://www.InfrastructureOSAI.com/assets/OSAI-FW-SCH-01.pdf

OSAI-FW-DMO-01
OSAI: Narrow Demonstration of Stable Identity with Changing Authority
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https://www.InfrastructureOSAI.com/assets/OSAI-FW-DMO-01.pdf

OSAI-FW-MEM-01
OSAI: A Neutral Naming and Reference Substrate for Software and AI Agents
Standards-Facing Memo (Public), v1.0, issued March 5, 2026.
https://www.InfrastructureOSAI.com/assets/OSAI-FW-MEM-01.pdf

OSAI-FW-RO-02
Reader's Orientation
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OSAI-FW-L2-DC-01
Document Control & Revision History
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