

6.3 - Tools for Semantic Infrastructure 2.0

Current Working Draft

This section provides an overview of the key tools that are expected to address the Semantic Infrastructure requirements. Tools are a combination of applications, user interfaces and services that address a specific Semantic Infrastructure 2.0 requirement. The tool description explains how users may work with the tools to perform specific tasks.

This information below describes the interactions a user would have with the Semantic Infrastructure components. These activities address aspects of the Enterprise Conformance and Compliance Framework (ECCF), including artifact registry and functional interactions.

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Semantic Infrastructure Services and Interactions

Artifact Search and Access

- Search the registry for model
- Utilizing a Common Terminology Services 2 (CTS 2) implementation, search for existing value sets
- Search the Identifiers registry for an appropriate identifier definition
- Retrieve an existing model from the registry
- Retrieve schemas and form definitions
- Import a new model for annotation (binding to terminology and value-sets)
- Retrieve the value set from CTS 2 implementation and apply to the model attributes

Artifact Authoring

- Create a new value set (leveraging terminology services) and manage existing artifacts
- Register the object identifier with its metadata
- Register a new artifact in the registry with its metadata (including ECCF specific information) and traceability to support provenance
- Link the models to existing models, domains, or both and classify artifacts
- Constrain existing models
- Constrain existing datatypes
- Link artifacts to service specifications
- Support collaborative development of metadata

Artifact Governance and Lifecycle Management

- Initiate artifact workflow
- Monitor the workflow process
- Allow curators to set the status of a model and receive change notifications
- Customize review and approval workflows
- Govern collaborative development

Artifact Analysis

- Execute semantic queries for search and analysis

Access Control and Policy Management

- Establish templates and policies that can be applied to artifacts
- Link the users security and access rights to particular governance and workflow
- Execute semantic queries for analysis
- Identify dependencies

Search and Access Services

- Discover services

- Execute complex queries to identify services
- Discover contracts at runtime

Administer Services and Specifications

- Create a new service specification
- Create and edit service metadata
- Link the artifacts to the service specification
- Construct conformance statements
- Run validations on specification and supporting artifacts
- Apply constraints, rules and policies
- Constrain and reuse existing specifications and artifacts

Analyze Services

- Execute semantic queries for analysis
- Perform impact analysis to identify dependencies and constraints

Service Governance and Workflows

- Initiate service specification governance
- Monitor the workflow and approval process
- Allow governance team to set the status of a specification and promote
- Manage versioning and localization of the service specifications
- Govern collaborative development

Plug-ins, Loaders and Miscellaneous Development Tools

Plug-ins and development tools are extensions to existing tools to support better integration with the artifact registry:

- Publish artifacts from eclipse and other modeling tools to the artifact registry
- Publish content from external tools to the artifact registry, with support for [topic maps](#) and DITA ([presentation on topicmaps.com](#))
- Extract and load metadata from artifacts into registry

Forms Editor

The Forms Editor is an end user tool for creating and editing forms:

- Create form definitions
- Retrieve models, datatypes and value sets
- Define skip patterns, layout and display options
- Publish forms to the artifact registry
- Reuse and leverage predefined templates

Conformance Testing Framework

The Conformance Testing Framework is a suite of tools for developing automated conformance testing that can be executed against an artifact or service:

- Retrieve or infer artifact metadata and any conformance statements provided
- Structure the artifact metadata for automated analysis
- Evaluate the artifact metadata and conformance statements against the base semantic profile
- Execute conformance tests
- Generate conformance report

Knowledge Based Systems Support Tools

Knowledge based systems support tools are knowledge engineering tools to support reasoning and inference use cases:

- Knowledge Representation Definition
- Rule Pattern Definition
- Domain Model Development
- Knowledge Base Model Definition
- Fact Generation and Mapping tooling
- Rule Generation tooling
- Reasoner Framework for Standard Knowledge-based System Development
- Automated Reasoning Service Publication



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