

HL7 Terminology Service (HL7TS)

Introduction

This is a proposal for Health Level Seven International (HL7) to enhance the HL7 Terminology (THO) solution with the addition of an HL7 Terminology Server and associated business processes thereby establishing the HL7 Terminology Service (HL7TS).

Background

A terminology service may broadly be described as a business service which includes the operation of technical infrastructure solutions and execution of related management activities which support access to and meaningful use of terminological content. The management activities could include content testing, authoring and management, provision of servers for storage, distribution and meaningful use of terminology content e.g. through provision of Application Programming Interfaces (APIs).

Terminology services streamline and simplify the adoption and meaningful use of terminology content by centralizing activities and technical functionality and managing the associated complexity in one place by a dedicated team.

It is generally accepted that a terminology service includes operation of a terminology server software application as a core component of the technical infrastructure solution. A terminology server is a specialized software application designed to store terminology content (including code systems, value sets, and maps) and providing applications with interfaces (e.g. APIs) to access or leverage this content.

The FHIR core specification defines a [terminology service](#) as a

service that lets healthcare applications make use of codes and value sets without having to become experts in the fine details of code system, value set and concept map resource.

It further goes on to define a server application which supports the requirements specified in the FHIR core specification as a *FHIR Terminology Service*. It is important to note that in the context of this proposal, a *FHIR Terminology Server*, is considered to be a software application component of the HL7 Terminology Service which meets the FHIR core specifications requirements for a *FHIR Terminology Service*..

In recent years, many government agencies have established and operate terminology service operations which include a FHIR Terminology Server including the Australian National Clinical Terminology Service (NCTS) and the NHS Terminology Server in the UK.

Problem Statement

The following points summarize the problem statement which the HL7 Terminology Service would address:

- HL7 Terminology (THO) has the following limitations
 - Multiple versions of the same terminology asset (e.g. a code system, a value set or a concept map) cannot be supported in the same release of THO.
 - The terminology assets held in THO cannot be directly accessed through an authoritative FHIR API
 - THO cannot easily be updated with new content as this would require a new build and release of THO which often takes weeks or months.
- tx.fhir.org (TFO)
 - It is unclear which policies underpin the operation and content held in TFO.
- Reliable web and API access to all HL7's internal terminology resources.
 - Currently, this need is met through a combination of primary standards (e.g. the FHIR core specification), the HL7 registry, HL7 Terminology (THO) and tx.fhir.org.
 - None of these are reliable

Proposal

HL7 should establish and support the ongoing operation of the HL7 Terminology Service (HL7TS) as a new service offering. HL7TS would be based on THO and operate as a well-managed terminology service which includes a FHIR Terminology Server which hosts and provides access to the various internal and external terminology resources relied upon by HL7 and its stakeholders.

Key use cases addressed by HL7TS would include:

- Hosting and providing access to all versions of all HL7's internal code systems, value sets and maps as FHIR CodeSystem ValueSet and ConceptMap resources.
- Where possible and subject to agreements with external terminology owners, host external terminology content products.
- Provide API access to these resources through operation of a FHIR Terminology Server
- Ensuring that a reliable FHIR Terminology Server is available to support HL7 work groups, affiliates and projects in the development of FHIR Implementation Guides. This includes:
 - Authoring of new terminology resources
 - Revision of existing terminology resources - possibly creating a new version
 - Supporting operation of the IGPublisher

Previous version:

A need has been identified for an HL7-operated terminology service to act as a central reference for HL7 terminology content, including external terminology content used widely in HL7 standards, other publications and across the HL7 community. A terminology service meeting this need should be managed by an HL7 entity, including support of an official process for executing Standard License Agreements (SLAs) with external terminology owners to make their content available via said terminology server. SLA terms should provide schedules for content updates and report any down time.

This terminology server should also act as a gold standard that other terminology server developers can test against to validate “gold standard” content hosted/. Additionally, the server would participate in benchmark quality and performance metrics developed by the TSMG. These activities would provide direct benefit to implementation validation requirements for terminological content, and support Connectathon and other implementation activities.

HL7 services currently exist that meet some of the requirements. The proposed server is not intended to replace these, but to supplement the purposes already provided. For example, the [HL7 Terminology](#) (THO) is a publication that provides browsing of HL7 terminology content within an Implementation Guide (IG). THO does not support run-time execution of terminology operations. THO has limited native search functionality which presents obstacles to the community when trying to find content. There are also challenges with versioning, as each release of THO provides only a snapshot of the content, as such it does not support viewing of all versions of a code system as a terminology server would.

Tx.fhir.org is a terminology server whose primary purpose is to support publishing and validation of FHIR artifacts for IG developers. However, it was not designed to support run-time execution of terminology operations, nor client-side terminology functions. Content is often updated ad hoc to support implementer needs. It was never intended to be used for general FHIR terminology use cases and can be taken down at any time. It also lacks a formal process for publishing external terminology content through the execution of SLAs. Therefore, it is not an all-purpose resource for terminology implementation use cases.

High Level Requirements

Stand up an HL7-managed terminology server that provides:

1. The HL7 Terminology (as it exists in THO)
2. Content from external terminologies that meet the (TSMG criteria for hosting on THO)
3. External content through the management of a process to execute SLAs with external content owners, including content update requirements
4. A set of functions as described on <https://build.fhir.org/terminology-service.html> (exact requirements to be developed later) and that are documented via a CapabilityStatement resource

5. A User Interface that gives capabilities beyond what is needed for publication, such as value set creation and management
6. Support for multiple versions of resources
7. A reference implementation that participates in established benchmark metrics for terminology servers testing
8. Official documentation that describes how content is loaded and represented (e.g., filters, preferred attributes, etc.), and the schedule for content updates
9. Consideration for alignment with the Unified Terminology Governance (UTG) process used to update the HL7 Terminology (THO)