Apelon DTS on FHIR®

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Apelon Overview

- Internationally recognized terminology experts
- Strong, active commitment to open standards
- Terminology tools and professional services used around the world
Apelon’s Distributed Terminology System (DTS)

An open source terminology server
What Is a Terminology Server?

• A Terminology Server is:
  • a networked software component
  • that centralizes terminology knowledge
    • local catalogs
    • required billing and data exchange codes
    • international standard vocabularies
  • and provides terminology services to other network applications.
Abundance of Terminologies

**Code Systems**
- CPT
- CVX
- DSM IV
- HCPCS
- HL7
- ICD-9-CM*
- ICD-10
- ICD-10-AM
- ICD-10-CA
- ICD-10-CM*
- ICD-10-PCS
- ICPC
- LOINC
- MedDRA
- MeSH
- Multum
- MVX
- NDF-RT*
- NANDA
- NIC
- NOC
- Race and Ethnicity
- RxNorm
- SNOMED CT
- UMDNS*
- UNII
- International translations
- Additional code systems can be made available

**Mappings**
- CPT to CVX
- CPT to SNOMED CT
- ICD-9-CM to SNOMED CT
- ICD-9-CM to ICD-10-CM/PCS (GEM)
- ICD-10-CM/PCS to ICD-9-CM (GEM)
- ICD-10-CM/PCS to ICD-9-CM (Reimbursement)
- RxNorm to proprietary (and inverse)
- SNOMED CT to CPT
- SNOMED CT to ICD-9-CM
- Comprehensive support for UMLS CUIs

**Subsets/Value Sets**
- VA/KP Problem List
- Core Problem List
- LOINC Common Lab Orders Value Set
- Meaningful Use Subsets
- Quality Metric Subsets

*Code Systems developed and managed with Apelon tools and services*
Abundance of Terminologies

• Support for over 900 Namespaces
• Support for all http://hl7.org/fhir CodeSystems

* Code Systems developed and managed with Apelon tools and services
CPT® Support

- In collaboration with the AMA, CPT® is now available through Apelon DTS on FHIR® for Development purposes only
- Registration and authentication required
- Production use requires licensure through AMA
Examples of Terminology Services

• Term/name normalization:
  What is SNOMED CT name for “heart attack”? **Myocardial Infarction**

• Code translation
  What is the ICD-9 code for Myocardial Infarction? **410.91**

• Grouping and aggregation
  Is Myocardial Infarction a Cardiac Disease? **True**

• Clinical knowledge
  What drug treats Myocardial Infarction? **Streptokinase**

• Quality Measure Value Set Validation
  Is a ICD-9-CM code 648.04 in the Diabetes Diagnosis eCQM value set? **True**
Distributed Terminology System (DTS)

• Leading open-source terminology server
• Supports both standard and local terminologies
  o Searching
  o Browsing
  o Modeling
  o Extension
  o Mapping
  o Run-time services
DTS: The single source of truth

- Integration of all core terminologies into a common framework
- Automated and configurable terminology and value set updates
- Versioning
  - All terminology versions form point of integration into DTS are available in a single knowledge base
- Terminology authoring
  - Enumerated and logically defined value sets
  - Cross-terminology mappings
  - Local names, codes, other attributes
- Full-featured, customizable Java API and SOAP Web Services
- Open source (http://apelondts.org)
- FHIR® integration (STU 3 Compliant)
DTS Value Sets

DTS value sets can be constructed using enumerated lists and/or logical definitions.
DTS Components

- Knowledge Base (Content)
- Server
- Client API
- GUI applications
- Utilities and samples
- Subscription content service
- Professional support
Distributed Terminology System (DTS)
Patient Data Validation

- FHIR Based data validation
- JSON and XML fully supported
- Object marshalling and manipulation
- FHIR messaging exposed and encapsulated
  - Do your own message processing
  - Just deal with POJOs
- 100% Touchstone tests passing
FHIR Resources Supported by DTS Validation

- Patient
- AllergyIntolerance
- Condition
- Procedure
- FamilyMemberHistory
- ClinicalImpression
- DetectedIssue
- CarePlan

- CareTeam
- Goal
- ReferralRequest
- ProcedureRequest
- RiskAssessment
- VisionPrescription
- NutritionRequest
FHIR Resources Supported by DTS Validation

• Validation of the complete Patient record is now supported by the DTS FHIR Terminology service
Patient Validation Testing

- 11,243 Distinct Patients
- 921,886 Codes validated
Patient Validation Testing Summary

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Patient Validation: Try it yourselves!

- fhir.ext.apelon.com:7080/dts/fhir/Patient/$validate
Patient Validation: Try it yourselves!
Get Authentication Credentials

Send email to
support@apelon.com
Patient Validation: Try it yourselves!

- Log into the Introduction Web Page and read the Rules of Engagement and other useful information regarding the DTS Terminology Server
Patient Validation

Post A Patient Resource
Patient Validation
Get A Response
100% Touchstone Tests Passed!

![Test Execution](image_url)

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<th>Test Script Execution</th>
<th>Version</th>
<th>Latest</th>
<th>Spec</th>
<th>Description</th>
<th>Status</th>
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<th>End Time</th>
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Contact Us!

- [information@apelon.com](mailto:information@apelon.com)
- HL7 Connectathons
Questions and Discussion