

LexEVS Asserted Value Set Service

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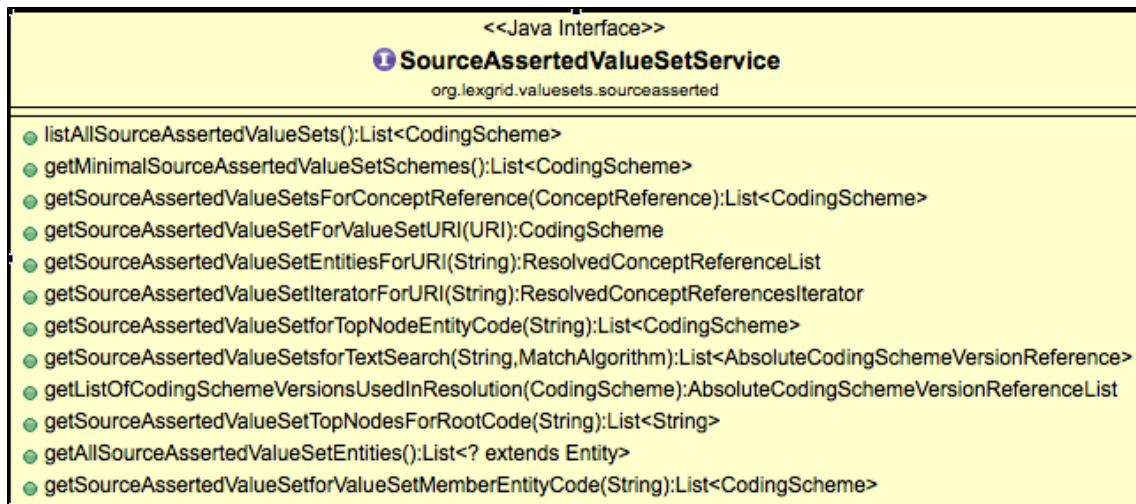
Introduction

The Asserted Value Set services are integrated parts of the LexEVS API. It provides several functions:

- Getting Source Asserted Value Sets as CodingScheme or Coding Scheme reference objects
- Getting the entities of Source Asserted Value Sets as ResolvedConceptReference objects as Lists or Iterators
- Getting a list of all unique identifiers of value set top nodes from this source terminology
- Getting a list of all schemes used to resolve a given set of values from a resolved value set coding scheme

Most coding scheme representations and entity reference sets are resolved by the unique URL of the coding scheme. Some allow a definition of a concept or text match. All methods offer a resolution service to some set of values. These mechanisms are largely read functions requiring a listing of known values or an exact match of a unique identifier. Only one method offers what could be classified as a search.

SourceAssertedValueSetService Class Diagram



LexEVS Asserted Value Set Definition Services API

LexEVS Asserted Value Set Services provides three major functions:

- List function
- Read function
- Search function

Each of these functions are described in following sections.

List Functions

- List all value sets as coding schemes
- List all value set entities in the asserted source system

List All Value Sets As Fully Populated Coding Schemes

```
listAllSourceAssertedValueSets
```

Description:	Lists all coding schemes each with its own entity set fully resolved
Input:	<i>none</i>
Output:	List<CodingScheme>
Exception:	<i>LBException</i>
Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to list a full set of coding schemes along with all of their entities</p> <p>Sample Call:</p> <ul style="list-style-type: none">• <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none">• <i>Step 2:</i> List all the coding scheme representations of the value sets <pre>List<CodingScheme> schemes = assVSService.listAllSourceAssertedValueSets();</pre>

List all Coding Schemes Without Entities

```
getMinimalSourceAssertedValueSetSchemes
```

Description:	Lists all coding schemes – no entities resolved
Input:	<i>none</i>
Output:	List<CodingScheme>
Exception:	<i>LBException</i>

Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to list a full set of coding schemes minus their entities</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre style="border: 1px solid #ccc; padding: 5px;">org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> List all the coding scheme representations of the value sets <pre style="border: 1px solid #ccc; padding: 5px;">List<CodingScheme> schemes = assVSService.getMinimalSourceAssertedValueSetSchemes();</pre>
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Coding Scheme Read Functions

- Get value sets by concept reference - Input an object that matches namespace and unique code of a value set member to return a list of containing schemes
- Get value sets by entity code - input is entity code only, no namespace is defined to read the value set that contains this as a value set member
- Get a single value set for its unique URI - The input should be an unique identifier for a coding scheme representation of a value set in the system
- Get a value set or value sets defined by a unique entity - The input is a unique entity code that identifies the top node of a given value set
- Get scheme references for a coding scheme representation - Pulls from a coding scheme those schemes from which the entities of the coding scheme representation of the value set is derived.

Get Value Sets by Concept Reference

```
getSourceAssertedValueSetsForConceptReference
```

Description:	Lists all coding schemes containing a particular concept reference
Input:	<i>ConceptReference ref - Configurable to contain both the unique identifier and the namespace of the target coding scheme (both are tied to the asserting source in this case)</i>
Output:	List<CodingScheme>
Exception:	<i>none</i>

Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get a coding scheme representation of a value set containing this concept reference</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> Construct the ConceptReference object: <pre>ConceptReference ref = new ConceptReference(); ref.setConceptCode("C1234"); ref.setCodeNamespace("ncit");</pre> <ul style="list-style-type: none"> • <i>Step 3:</i> List all the coding scheme representations of the value sets <pre>List<CodingScheme> schemes = assVSServ.getSourceAssertedValueSetsForConceptReference(ref);</pre>
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Get Value Sets For Entity Code

<code>getSourceAssertedValueSetforTopNodeEntityCode</code>	
Description:	Lists all coding schemes that have a top node defined by a unique entity code
Input:	<i>String matchCode: unique identifier of the top node entity</i>
Output:	List<CodingScheme>: Might be more than one value set defined by this top node.
Exception:	<i>LBException</i>
Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get one or more coding scheme representations of value sets that have a top node defined by this identifier</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> List all the coding schemes defined by the top node designated by the unique identifier <pre>List<CodingScheme> schemes = assVSServ.getSourceAssertedValueSetforTopNodeEntityCode ("C12434");</pre>

Get a Single Value Set for Its Unique URL

```
getSourceAssertedValueSetForValueSetURI
```

Description:	Gets a coding scheme representation of a value set based on its unique URI designation
Input:	<i>URI uri: unique identifier of the top node entity wrapped in a URI object</i>
Output:	CodingScheme: The coding scheme representation of the value set represented by this uniquely identifying URI
Exception:	<i>LBException</i>
Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get a single coding scheme representation of a value set using it's unique identifier wrapped in a URI object.</p> <p>Sample Call:</p> <ul style="list-style-type: none">• <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none">• <i>Step 2:</i> Instantiate a URI object using a string representation of the URI designation <pre>URI uri = new URI("http://evs.nci.nih.gov/valueset/CDISC/C12434");</pre> <ul style="list-style-type: none">• <i>Step 2:</i> List all the coding schemes defined by the top node designated by the unique identifier <pre>CodingScheme scheme = assVSServ.getSourceAssertedValueSetForValueSetURI(uri);</pre>

Get Coding Scheme References for Any Source Schemes Used to Resolve a Coding Scheme Representation of a Value Set

```
getListOfCodingSchemeVersionsUsedInResolution
```

Description:	Gets minimal representations of coding schemes based on what was used to resolve a value set
Input:	<i>CodingScheme cs: CodingScheme object with full metadata populated, entity representation not necessary</i>
Output:	AbsoluteCodingSchemeVersionReferenceList: Might be more than one coding scheme that defines this value set
Exception:	<i>none</i>

Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to determine what coding schemes define the value set.</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> Get a coding scheme using one of the Asserted Value Set Service methods: <pre>CodingScheme cs = assVSServ.getSourceAssertedValueSetForValueSetURI(new URI("http://evs. nci.nih.gov/valueset/CDISC/C12434")); ;</pre> <ul style="list-style-type: none"> • <i>Step 3:</i> List all the coding schemes defined by the top node designated by the unique identifier <pre>AbsoluteCodingSchemeVersionReferenceList list = assVSServ. getListOfCodingSchemeVersionsUsedInResolution(cs);</pre>
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Concept Reference Read Functions

- Get references for unique URI identifier - Unique identifier returns all value set members of that coding scheme representation of a value set.
- Get a list of string unique identifiers of references that are a top node - All top nodes of a system are returned based on the identification of the node that has a reference to the top of the hierarchy

Get Resolved Concept References for the Coding Scheme Unique Identifier

<pre>getSourceAssertedValueSetIteratorForURI getSourceAssertedValueSetEntitiesForURI</pre>	
Description:	Gets Resolved Concept Reference representations of entity values in a value set based on the unique identifier of the coding scheme representation
Input:	<i>String uri: String representation of the coding scheme unique identifier</i>
Output:	ResolvedConceptReferenceList or ResolvedConceptReferencesIterator: Entities listed or iterated over that are members of the value set defined by the unique URI designation
Exception:	<i>none</i>

Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get entities from a unique value set</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> Get an iterator over the entity members of the value set <pre>ResolvedConceptReferencesIterator iterator = assVSServ. getSourceAssertedValueSetIteratorForURI("http://evs.nci.nih.gov/valueset/CDISC/C119014");</pre> <ul style="list-style-type: none"> • <i>or get a list</i> <pre>ResolvedConceptReferenceList list = assVSServ.getSourceAssertedValueSetEntitiesForURI ("http://evs.nci.nih.gov/valueset/CDISC/C119014");</pre>
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Get Top Node References

```
getSourceAssertedValueSetTopNodesForRootCode
```

Description:	Gets String references to all top node leaves under a root node
Input:	<i>String rootCode: String representation of the unique identifier of the Asserted Value Set root entity</i>
Output:	List<String>: String references to entity top node designations of the Asserted Value Sets
Exception:	<i>none</i>
Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get all top node string identifier references</p> <p>Sample Call:</p> <ul style="list-style-type: none"> • <i>Step 1:</i> Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none"> • <i>Step 2:</i> Get a list of all the top nodes in the Asserted Value Set system: <pre>List<String> list = assVSServ.getSourceAssertedValueSetTopNodesForRootCode("C54443");</pre>

Search Function

- Get value set coding scheme reference based on a text match for a member entity - Can be used with a text match algorithm determining match type.

Get a Value Set from Text Match

```
getSourceAssertedValueSetsforTextSearch
```

Description:	Gets minimal coding scheme references of value sets for a text match
Input:	<i>String matchText: Text to match on for contains, exact, other algorithms as allowed.</i> <i>MatchAlgorithm matchType: Type of matching for any given match type in this enum.</i>
Output:	List<AbsoluteCodingSchemeVersionReference>: String references to entity top node designations of the Asserted Value Sets
Exception:	<i>LBException</i>
Implementation Details:	<p>Implementation: Call this method on the associated LexEVS Asserted Value Set service instance to get any coding scheme references that have a member entity with text matching the text and algorithm</p> <p>Sample Call:</p> <ul style="list-style-type: none">Step 1: Instantiate SourceAssertedValueSetService if it is not done yet: <pre>org.lexgrid.valuesets.SourceAssertedValueSetServiceImpl assVSServ = new SourceAssertedValueSetServiceImpl(new AssertedValueSetParameters.Builder().build());</pre> <ul style="list-style-type: none">Step 2: Get a list of all the top nodes in the Asserted Value Set system: <pre>List<AbsoluteCodingSchemeVersionReference> list = assVSServ. getSourceAssertedValueSetsforTextSearch("blood", MatchAlgorithm.PRESENTATION_EXACT);</pre>

System Testing

The System test case for the LexEVS Value Set Definition service is performed using the JUnit test suite:

```
edu.mayo.informatics.lexgrid.convert.directConversions.assertedValueSets.SourceAssertedValueSetSearchIndexServiceTest
```

This API is largely used as support for the LexEVSResolvedValueSetService but both test classes are run as part of regular LexEVS test suite AllTestsNormalConfigs.

Installation / Packaging

Value Set Definition Services are integrated parts of core LexEVS API and are packaged and installed with other LexEVS services.