



VSAC Users' Forum

**Thursday, February 19
2:00 – 3:00 PM, ET**



Today's Agenda

- **The VSAC SVS API**

- **Announcements**

VSAC Code System Updates:

Week of 2/23: RxNorm 2015-02

Mid March: US Edition of SNOMED CT 2015-03



VSAC SVS API v2

- VSAC Download Ecosystem
- VSAC SVS API is intended for machine consumption
- Based on IHE SVS Technical Framework
- Changes to the VSAC SVS API
- Two method calls
- Supported Use Cases
- Several parameters
- Example API calls and resulting XML
- Additional non-SVS 'helper API calls,' or utility services
- Authorization Tickets: TGT and Service



VSAC Download Ecosystem

Download Type	Expected Users	VSAC Access Location
Excel Spreadsheet	Human Analysts	Download Tab User Interface (Search Value Sets) Authoring (My Value Sets, Editing)
Text File (pipe delimited transformation of SVS XML)	Programmer/ Computers	Download Tab User Interface (Search Value Sets)
XML (IHE SVS)*	Computer	Download Tab User Interface (Search Value Sets)
API (IHE SVS)*	Computer	Method calls in command line or URL



VSAC Download Tab

Prepackaged eCQM value sets (Excel, XML, Text)

Welcome

Search Value Sets

Authoring

Download

Downloadable Resources Table

2014 Clinical Quality eMeasures (eCQMs)

Publication Date: July 01, 2014 (Replaces May 30, 2014 Publication. CMS corrected CMS147v3 measure logic, up-versioning to CMS147v4. Ther

Available Downloads	Sorted by CMS ID	Sorted by Value Set Name
2014 eCQM Value Sets for Eligible Hospitals (EH)	Excel (xlsx) SVS (xml)	Excel (xlsx) SVS (xml) SVS (text)
2014 eCQM Value Sets for Eligible Professionals (EP)	Excel (xlsx) SVS (xml)	Excel (xlsx) SVS (xml) SVS (text)
All 2014 eCQM Value Sets (EP and EH)	Excel (xlsx) SVS (xml)	Excel (xlsx) SVS (xml) SVS (text)



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VSAC Search Value Sets

All published value sets (Excel, XML, Text)

The screenshot displays the VSAC Search Value Sets interface. At the top, there are navigation tabs: Welcome, Search Value Sets (active), Authoring, and Download. Below the tabs, there are buttons for 'Apply Filters' and 'Clear Filters'. A search bar is labeled 'Search the NLM Value Set Repository' with a placeholder 'Query: Enter value set id, codes, words...'. On the left side, there are several filter sections: 'CMS eMeasure (NQF Number)' with a 'Select' dropdown, 'Quality Data Model Category' with a 'Select' dropdown, 'Steward' with a 'Select' dropdown, and 'Meaningful Use Measures'. The main content area shows 'Search Results' and 'Value Set Details' tabs. Under 'Search Results', there is a table of 'Matched Value Sets'. The first row is selected, and the 'Download' button is circled in red. A red arrow points from the 'Steward' filter dropdown to the first row of the table. A 'Download' dialog box is open, showing 'Download Type:' with a dropdown menu containing 'Excel', 'XML', and 'Text'. The dialog also has 'OK' and 'Cancel' buttons.

Welcome Search Value Sets Authoring Download

Apply Filters Clear Filters

Search the NLM Value Set Repository

Query: Enter value set id, codes, words...

Narrow search results by selecting from pull-down menus below:

CMS eMeasure (NQF Number) Select

Quality Data Model Category Select

Steward Select

Meaningful Use Measures

Search Results Value Set Details

Matched Value Sets

Download View Toggle Clear

	Name
<input checked="" type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient

Download

Download Type: Excel

Excel
XML
Text

OK Cancel



VSAC Download Ecosystem

Download Type	Expected Users	VSAC Access Location
Excel Spreadsheet	Human Analysts	Download Tab User Interface (Search Value Sets) Authoring (My Value Sets, Editing)
Text File (pipe delimited transformation of SVS XML)	Programmer/ Computers	Download Tab User Interface (Search Value Sets)
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API (IHE SVS)*	Computer	Method calls in command line or URL



VSAC Authoring – My Value Sets

Draft and Published Value Sets from your Author/Steward group (Excel)

▼ My Value Sets

My Value Sets

[Download Excel](#) [Refresh](#) [Clear Filter](#)

<input type="checkbox"/>	Name	Type	Code System
<input type="checkbox"/>			
<input type="checkbox"/>	Medicare payer	Extensional	SOP
<input type="checkbox"/>	Blood urea nitrogen serum plasma	Grouping	LOINC
<input type="checkbox"/>	ED Encounter CCDE	Grouping	CPT SNOMEDCT
<input type="checkbox"/>	Glucose blood serum plasma	Grouping	LOINC
<input type="checkbox"/>	Heart rate	Grouping	SNOMEDCT LOINC
<input type="checkbox"/>	Hemoglobin blood serum plasma	Grouping	LOINC



VSAC Authoring – Editing

Draft and Published Value Sets from your Author/Steward group (Excel)

Welcome Search Value Sets **Authoring** Download

Value Sets **Medicare p...** *

[Export Value Set Details \(Excel\)](#)

Name: Medicare payer Version: 20150212 Status: Published

OID: 2.16.840.1.113762.1.4.1104.10 Note: Medicare payer value set for CCDE



VSAC Download Ecosystem

Download Type	Expected Users	VSAC Access Location
Excel Spreadsheet	Human Analysts	Download Tab User Interface (Search Value Sets) Authoring (My Value Sets, Editing)
Text File (pipe delimited transformation of SVS XML)	Programmer/ Computers	Download Tab User Interface (Search Value Sets)
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IHE SVS Technical Framework

Integrating the Healthcare Enterprise



**IHE IT Infrastructure (ITI)
Technical Framework Supplement**

**Sharing Value Sets
(SVS)**

Trial Implementation
August 10, 2010



What's New: SVS Base URL

OLD (v1) {baseUrl} = <https://vsac.nlm.nih.gov/vsac/ws>

NEW (v2) {baseUrl} = <https://vsac.nlm.nih.gov/vsac/svs>



Two VSAC SVS API Method Calls

{baseUrl} = <https://vsac.nlm.nih.gov/vsac/svs>

1. **{baseUrl}/RetrieveValueSet**

Retrieves only the value set concept list for a value set.

Example: <https://vsac.nlm.nih.gov/vsac/svs/RetrieveValueSet>

2. **{baseUrl}/RetrieveMultipleValueSets**

Retrieves value set metadata content as well as the concept list for one or more value sets.

Example:

<https://vsac.nlm.nih.gov/vsac/svs/RetrieveMultipleValueSets>



Parameters: What's New

These Parameters Remain the Same

ticket

id

version (new interpretation=label)

effectiveDate

includeDraft

New Parameters

Old Parameters

profile (expansion profile)

n/a

tagName combined with **tagValue**

tagName=CMS eMeasure ID&tagValue=CMS100v1

cmsemeasureid

tagName combined with **tagValue**

tagName=eMeasureIdentifier&tagValue=100

measureid

tagName combined with **tagValue**

tagName=NQF Number&tagValue=0142

NQFNumber



VSAC SVS API Parameters

Parameter	Description	Note	SVS API METHOD
ticket	Single-use service ticket	Each ticket expires after one API call or 5 minutes.	RetrieveValueSet RetrieveMultipleValueSets
id	Value set OID		RetrieveValueSet RetrieveMultipleValueSets
version	String that uniquely identifies a specific value set expansion.	Examples: "MU2 EP Update 2014-07-01" or "20141020"	RetrieveValueSet RetrieveMultipleValueSets
effectiveDate (Discouraged)	Date to determine the most current value set expansion as of that date, example: 20141020	Must be used together with "id" Defaults to VSACAutoExpansion	RetrieveMultipleValueSets
includeDraft	Retrieves most current definition of an unpublished draft value set. To generate an expansion we need profile and definition.	Must be used together with "profile" and "id"	RetrieveMultipleValueSets
profile	Expansion profile: predetermined calculation of value set against a certain code system version, includes predefined legacy codes.	Example: "MU2 EP Update 2014-07-01"	RetrieveMultipleValueSets
tagName	Tag for multiple value sets (utility API retrieves available tagNames)	Example: "CMS eMeasure ID" Must be used together with "tagValue"	RetrieveMultipleValueSets
tagValue	Tag value for multiple value sets (utility API retrieves available tagValues for a given tagName)	Example: "CMS100v1" Must be used together with "tagName"	RetrieveMultipleValueSets
programType and subtype	MU2, MU3, CCDA, QRDA, etc. (subtype example: EH, EP for MU)	Coming Soon	RetrieveMultipleValueSets



Authorization : Ticket Granting Tickets and Service Tickets

Authorization : Ticket Granting Tickets and Service Tickets

- **Obtain a Ticket Granting Ticket (TGT)**

Make a POST request to <https://vsac.nlm.nih.gov/vsac/ws/Ticket>

Use your UMLS username and password: **username=xxxxxxx&password=xxxxxxx**

You only need one TGT for all your single-use service tickets each day (8 hours).

- **Obtain a Service Ticket for each API call, using your TGT**

Make a POST request to <https://vsac.nlm.nih.gov/vsac/ws/Ticket/<TicketGrantingTicket>>

Use <http://umlsks.nlm.nih.gov> as the service in the POST request.

Each service ticket is good for 5 minutes but expires after each API call.

- **Use one service ticket for each VSAC API call.**

Make a GET request with the VSAC API URL, using a new service ticket for each API call.



Supported API Use Cases

- 1. Retrieve the latest available value set expansion based on the latest definition of that value set.**

`{retrieveValueSetUrl}?id={OID}&ticket={serviceTicket}`

-or-

`{retrieveMultipleValueSetsUrl}?id={OID}&ticket={serviceTicket}`

- 2. Retrieve a released expanded value set with the specified release version label.**

`{retrieveValueSetUrl}?id={OID}&version={versionLabel}&ticket={serviceTicket}`

-or-

`{retrieveMultipleValueSetsUrl}?id={OID}&version={versionLabel}&ticket={serviceTicket}`



Supported API Use Cases (continued)

- 3. Retrieve a value set expansion associated with the specified expansion profile.**
{retrieveMultipleValueSetsUrl}?id={OID}&profile={profileName}&ticket={serviceTicket}
[Note: this call retrieves the latest published value set expansion if you do not use the includeDraft parameter (as below). However, if the specified value set OID has not been published, then no results will be returned by the API.]
- 4. Retrieve a value set based on its most recently published definition, or the most recent draft definition if available, calculated with the specified expansion profile.**
{retrieveMultipleValueSetsUrl}?id={OID}&profile={profileName}&includeDraft=yes&ticket={serviceTicket}



Supported API Use Cases (continued)

5. **Return a value set expansion as of a given date.**

`{retrieveMultipleValueSetsUrl}?id={OID}&effectiveDate={effectiveDate}&ticket={serviceTicket}`

[Note: this parameter will always apply the VSAC Auto Expansion profile with the most recent code system versions in VSAC.]

6. **Return one or more value sets based on associated metadata labeled by tagName.**

`{retrieveMultipleValueSetsUrl}?tagName={tagName}&tagValue={tagValue}&ticket={serviceTicket}`



Example API Call and Resulting XML

Example API Call and Resulting XML

Use Case

Retrieve all value sets and metadata for CMS eMeasure ID CMS100v3

API Code

GET <https://vsac.nlm.nih.gov/vsac/svs/RetrieveMultipleValueSets?tagName=CMS eMeasure ID &tagValue=CMS100v3&ticket=ST-20430-X0nKrEeOfYel07mqtKMs-cas>

Resulting XML

```
- <ns0:RetrieveMultipleValueSetsResponse>
+ <ns0:DescribedValueSet ID="1.3.6.1.4.1.33895.1.3.0.45" displayName="Comfort Measures " version="MU2 EH Update 2014-04-01">
  </ns0:DescribedValueSet>
+ <ns0:DescribedValueSet ID="2.16.840.1.113762.1.4.1" displayName="ONC Administrative Sex" version="MU2 EH Update 2014-04-01">
  </ns0:DescribedValueSet>
+ <ns0:DescribedValueSet ID="2.16.840.1.113762.1.4.1021.3" displayName="Aspirin ingredient specific" version="MU2 EH Update 2014-04-01">
  </ns0:DescribedValueSet>
+ <ns0:DescribedValueSet ID="2.16.840.1.113762.1.4.1045.31" displayName="Other Anticoagulants for AMI" version="MU2 EH Update 2014-04-01">
  </ns0:DescribedValueSet>
+ <ns0:DescribedValueSet ID="2.16.840.1.113883.3.117.1.7.1.139" displayName="Aspirin Allergen" version="MU2 EH Update 2014-04-01">
  </ns0:DescribedValueSet>
```

...truncated



Utility Services - Tag Names (Metadata)

Use Case

Return the list of metadata tag names.

API Code

GET <https://vsac.nlm.nih.gov/vsac/tagNames?ticket=ST-21401-wTMvhXLtZ27uKlhutbEt-cas>

Resulting XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tagNames>
  <name>CMS eMeasure ID</name>
  <name>eMeasure Identifier</name>
  <name>NQF Number</name>
</tagNames>
```



Search Value Sets - Filters

Welcome Search Value Sets Authoring Download

Search the NLM Value Set Repository

Query: Enter value set id, codes, words...

Apply Filters Clear Filters

Narrow search results by selecting from pull-down menus below:

CMS eMeasure (NQF Number)
Select

Quality Data Model Category
Select

Steward
Select

Meaningful Use Measures
Select

Code System
Select

Search Results Value Set Details

Matched Value Sets

Download View Toggle Clear

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	AMI



Search Value Sets - Filters

Welcome **Search Value Sets** Authoring Download

Apply Filters Clear Filters

Search the NLM Value Set Repository
Query:

Narrow search results by selecting from pull-down menus below:

CMS eMeasure (NQF Number)

Select

Filter:

Check all Uncheck all

- CMS100v3 (0142)
- CMS102v3 (0441)
- CMS104v3 (0435)
- CMS105v3 (0439)
- CMS107v3 (----)

Code System

Select

Search Results Value Set Details

Matched Value Sets

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	AMI



Utility Services - Tag Values (Metadata)

Utility Services - Tag Values (Metadata)

Use Case

Return the list of metadata tag values for a specified metadata tag name.

API Code

GET <https://vsac.nlm.nih.gov/vsac/tagName/CMS eMeasure ID/tagValues?ticket=ST-21787-cvddeyd7ih7XnBUb0lcX-cas>

Resulting XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<tagValues tagName="CMS eMeasure ID">
  <value>CMS100v1</value>
  <value>CMS100v2</value>
  <value>CMS100v3</value>
  ... truncated
</tagValues>
```



Search Value Sets - Filters

Welcome **Search Value Sets** Authoring Download

Apply Filters Clear Filters

Search the NLM Value Set Repository
Query: Enter value set id, codes, words...

Narrow search results by selecting from pull-down menus below:

CMS eMeasure (NQF Number)

Select

Filter: Enter keywords
✓ Check all ✗ Uncheck all

- CMS100v3 (0142)
- CMS102v3 (0441)
- CMS104v3 (0435)
- CMS105v3 (0439)
- CMS107v3 (----)

Code System

Select

Search Results Value Set Details

Matched Value Sets

Download View Toggle Clear

<input type="checkbox"/>	Name
<input checked="" type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ACE Inhibitor or ARB Ingredient
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	ADHD Medications
<input type="checkbox"/>	AMI



Utility Services - Expansion Profiles

Use Case

Return the list of expansion profiles.

API Code

GET <https://vsac.nlm.nih.gov/vsac/profiles?ticket=ST-117397-UK9FratiEQQopcCJe3V1-cas>

Resulting XML

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<ProfileList>
  <profile>VSAC Auto Expansion</profile>
  <profile>MU2 Update 2015-05-01</profile>
  <profile>MU2 EP Update 2014-05-30</profile>
  <profile>MU2 EH Update 2014-04-01</profile>
  <profile>MU2 EP Update 2013-06-14</profile>
  <profile>MU2 EH Update 2013-04-01</profile> ...truncated
</ProfileList>
```

Authoring Interface- Expansion Profiles

The screenshot displays the Value Set Authority Center interface for editing a value set named "Hepatitis B". The interface includes fields for Name, Version (20140501), Status (Published), and OID (2.16.840.1.113883.3.464.1003.110.11.1071). A "Code Validation" dialog box is open, showing a list of expansion profiles. The "View" button in the dialog is circled in red. A red arrow points from the "Validate" button in the "Value Set Code List" table to the "Code Validation" dialog.

Name: Hepatitis B
Version: 20140501
Status: Published

OID: 2.16.840.1.113883.3.464.1003.110.11.1071

Purpose: Hide

Clinical Focus: [Empty field]
Data Element Scope: [Empty field]

Inclusion Criteria: [Empty field]
Exclusion Criteria: [Empty field]

Type: Extensional
Code System: SNOMEDCT
Steward: NCQA PHEMUR
Code System Version: 2013-09

Code Validation Dialog:

Select Expansion Profile:

- MU2 Update 2015-05-01
- VSAC Auto Expansion
- MU2 Update 2015-05-01
- MU2 EP Update 2014-05-30
- MU2 EH Update 2014-04-01
- MU2 EP Update 2013-06-14
- MU2 EH Update 2013-04-01
- MU2 Update 2012-12-21
- MU2 Update 2012-10-25

Value Set Code List:

Code	Descriptor	FN	Active
1116000	Chronic aggressive type B viral hepatitis (disorder)	FN	Active
111891008	Viral hepatitis B without hepatic coma (disorder)	FN	Active
12265005	Acute fulminating type B viral hepatitis (disorder)	FN	Active

Authoring Interface- Expansion Profiles

Value Sets

Expansion Profile Details ✕

Name: Hepatitis B

OID: 2.16.840.1.1138

Purpose: [Hide](#)

Clinical Focus:

Inclusion Criteria:

Type: Extensional

Code System: SNOMEDCT

Code Systems		Legacy Codes		
Code System	Code System Version	Code	Descriptor	Code System Label
AdministrativeSex	HL7V2.5	100	pneumococcal conjugate vaccine, 7 CVX, 2014	
CDCREC	1.0	123802001	Mitral valve stenosis and regurgitatio	SNOMEDCT, 2013-09
CDT	2015	186621007	Viral hepatitis A with coma (disorder)	SNOMEDCT, 2013-09
CPT	2015	186623005	Viral hepatitis B with coma (disorder)	SNOMEDCT, 2013-09
CVX	2015	187758006	Malignant neoplasm of other specifi	SNOMEDCT, 2012-07
DischargeDisposition	HL7V2.5	19180	Mastectomy, simple, complete	CPT, 2006
HCPCS	2015	19200	Mastectomy, radical, including pecto	CPT, 2006
HSLOC	2010	19220	Mastectomy, radical, including pecto	CPT, 2006
ICD10CM	2015	19240	Mastectomy, modified radical, includ	CPT, 2006
ICD10PCS	2015	255070009	Malignant tumor of oral cavity, lips, s	SNOMEDCT, 2013-09
ICD9CM	2013	276789009	Labile hypertension (disorder)	SNOMEDCT, 2013-09
LOINC	2.50	44152	Colectomy, total, abdominal, without	CPT, 2006
RXNORM	2015-01	44153	Colectomy, total, abdominal, without	CPT, 2006
SNOMEDCT	2014-09	44393	Colonoscopy through stoma; with al	CPT, 2014
SOP	5.0	44397	Colonoscopy through stoma; with tr	CPT, 2014

⏪ ⏩ Page <input style="width: 30px;" type="text" value="1"/> of 1 ⏪ ⏩ <input style="width: 30px;" type="text" value="15"/> View 1 - 1	⏪ ⏩ Page <input style="width: 30px;" type="text" value="1"/> of 3 ⏪ ⏩ <input style="width: 30px;" type="text" value="15"/> View 1 - 15 of 33
---	--

Code	Code	System	Status
<input type="checkbox"/>	<input style="width: 80%;" type="text"/>		
<input type="checkbox"/>	1116000	C	
<input type="checkbox"/>	111891008	Viral hepatitis B without hepatic coma (disorder)	FN Active
<input type="checkbox"/>	12265005	Acute fulminating type B viral hepatitis (disorder)	FN Active



Utility Services - Version Labels

Use Case

Return all available version labels for a specified value set OID.

API Code

GET <https://vsac.nlm.nih.gov/vsac/oid/2.16.840.1.113883.3.464.1003.110.12.1027/versions?ticket=ST-22286-wss0r47EbL96bqNLXkNI-cas>

Resulting XML

```
<VersionList oid="2.16.840.1.113883.3.464.1003.110.12.1027">  
  <version>20150127</version>  
  <version>MU2 EP Update 2014-07-01</version>  
  <version>MU2 EP Update 2014-05-30</version>  
  <version>20140501</version>  
  <version>20140125</version>  
  <version>20131030</version>  
  <version>MU2 EP Update 2013-06-14</version>  
  <version>MU2 Update 2012-10-25</version>  
</VersionList>
```



Search Value Sets – Value Set Details

Search the NLM Value Set Repository

Query: 2.16.840.1.113883.3.464.1003.110.12.1027

Search

Search Results

Value Set Details

Value Set Information

Available Updates:

Approved By Steward

Versions:

MU2 EP Update 2014-07-01

Metadata

Measure

Grouping

Name:

Pneumococcal Vaccine

Type:

Grouping

Steward:

National Committee for Quality Assurance

Select...

For Program:
CMS

MU2 EP Update 2014-07-01

MU2 EP Update 2014-05-30

MU2 EP Update 2013-06-14

MU2 Update 2012-10-25

64.1003.1

CMS, MU2 EP Update 2014-07-01



Search Value Sets – Value Set Details

Search the NLM Value Set Repository

Query: 2.16.840.1.113883.3.464.1003.110.12.1027

Search

Search Results

Value Set Details

Value Set Information

Available Updates:

Automatic updates by VSAC

Versions:

20150127

Metadata

Grouping

Name:

Pneumococcal Vaccine

Type:

Grouping

Steward:

National Committee for Quality Assurance

20150127
20140501
20140125
20131030

2.16.840.1.113883.3.464.1003.11

Version ID:

20140501

***This update was generated by VSAC and has not yet been endorsed by National Committee for Qua



Questions?

Questions?

Send comments, questions, ideas to:

custserv@nlm.nih.gov

(place VSAC in the subject line)

Upcoming VSAC Users' Forum:

March 19, 2015