RESOURCE AND PATIENT MANAGEMENT SYSTEM

IHS Standard Terminology
Application Programming Interface

(BSTS)

Technical Manual

Version 2.0 Patch 3
July 2020

Office of Information Technology
Division of Information Technology
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Preface

The purpose of this manual is to provide technical information about the Version 2.0 Patch 3 release of the Indian Health Service (IHS) Standard Terminology (BSTS) package. The BSTS package contains a number of Application Programming Interface (API) calls developed to interface with Apelon’s Distributed Terminology System (DTS). These APIs provide a general interface and caching mechanism for Massachusetts General Hospital (M) Utility Multi Programming System MUMPS-based/FileMan-based systems to interact with an external terminology server, specifically DTS.

DTS 4.4, provided by Apelon, Inc. (Apelon), is a comprehensive open source solution for the acquisition, management, and practical deployment of standardized terminologies, with local enhancements, into distributed application environments. DTS establishes a single common resource for an organization’s terminology assets that can be deployed across the spectrum of health information delivery systems.
1.0 Introduction

The BSTS package is a component of the IHS Resource and Patient Management System (RPMS) that provides a general interface and caching mechanism for MUMPS-based/FileMan-based systems to interact with an external terminology server, specifically DTS. The APIs are designed to be application independent and stand-alone interfaces.

This manual provides IHS application developers with a technical description of the BSTS APIs, routines, files, menus, cross references, globals, and other necessary information required to effectively use the APIs from an external application to access Systematized Nomenclature of Medicine-Clinical Terms (SNOMED CT®), RxNorm, Unique Ingredient Identifier (UNII) codesets as well as IHS-defined custom mapping codesets located in an external terminology service. The APIs also have the flexibility to retrieve other terminologies from DTS in the future, such as, International Classification of Diseases (ICD) codes.

All APIs, routines, files, options, and keys are namespaced starting with the letters BSTS. The file number range for this package is 9002318–9002318.99.
2.0 Orientation

The BSTS package consists of a set of APIs to be called from an external application to search and return valid terminology concepts and associated information. The API package is distributed as a Kernel Installation and Distribution System (KIDS) package which contains the appropriate files and routines to enable data storage, auditing/logging, performance metrics and tools for monitoring and analysis, and a formal error handling and reporting mechanism.

Interaction between the external application (e.g., IHS Electronic Health Record [EHR], iCare) and the DTS is accomplished through the BSTS APIs via web service calls or requests. All APIs in this package begin with the namespace letters BSTS.

A high-level diagram of the terminology services architecture is shown in Figure 2-1. Each of the main components identified is detailed in the sections that follow.

![Application Architecture](image)

Figure 2-1: High-level application architecture diagram for the IHS Terminology Services Solution
2.1 RPMS Applications

Pictured on the left side of Figure 2-1 are the various RPMS applications that interact with the terminology systems. Several development modalities exist for these RPMS applications, including those created using Microsoft® .NET Framework, components with the IHS EHR, as well as the traditional character based *green screen* applications.

Each of these types of applications connects to RPMS in different ways.

- The Microsoft .NET applications use an ADO.NET adapter for RPMS that is called BMXNet.
- The EHR components use a Remote Procedure Call (RPC) broker mechanism referred to as the “CIA Broker.”
- The character-based applications are executed directly within the RPMS InterSystems Caché® database and therefore have direct access to the RPMS database.

In the solution, each of these types of applications continue to interact with RPMS using the same mechanisms they currently use and interact with the terminology services via the new RPMS Terminology Services API described within this document.

2.2 Terminology Service RPMS API

Applications interact with a MUMPS-based API library that exposes functions and classes that encapsulate the interface with the DTS terminology server. These APIs return information in familiar data array format and eliminate the need for the applications to directly interface with the web service interface and related Extensible Markup Language (XML) messaging.

While the current library of BSTS API calls is currently the primary means through which RPMS-based applications will interact with the terminology server functions, there may be valid use-cases that arise in the future that would be best accommodated through direct web-service interaction with the terminology service. There is nothing that would preclude this direct access by applications in the future.

The majority of this technical manual is focused on describing the current implementation of this terminology API library.

2.3 Stand-alone Terminology Service Instance

The terminology service solution component selected for this proposed design is the DTS Version 4.4 created by Apelon. Specific information about the DTS 4.4 application follows:
<table>
<thead>
<tr>
<th>Solution/Product Name:</th>
<th>Apelon DTS Version 4.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company Website:</td>
<td><a href="http://www.apelon.com">http://www.apelon.com</a></td>
</tr>
<tr>
<td>Description:</td>
<td>Apelon DTS is developed and supported by Apelon and consists of the following components:</td>
</tr>
<tr>
<td></td>
<td>- A core terminology server</td>
</tr>
<tr>
<td></td>
<td>- DTS Editor, a standalone application for managing the terminologies on the server</td>
</tr>
<tr>
<td></td>
<td>- DTS Browser, a web-based front-end for viewing terminology trees</td>
</tr>
<tr>
<td></td>
<td>- Import and Migration utilities</td>
</tr>
<tr>
<td></td>
<td>- API and Web Services to support application development</td>
</tr>
<tr>
<td>Licensing:</td>
<td>Open Source (Apache License Version 2)</td>
</tr>
<tr>
<td>Cost:</td>
<td>The DTS 4.4 software is currently available at no cost. Apelon offers other paid services for standard code-set updates and mapping information from published sources.</td>
</tr>
<tr>
<td>Support:</td>
<td>Available as a paid service from Apelon. Ad hoc support and training also available.</td>
</tr>
<tr>
<td>Developer Communities:</td>
<td>Yes, but not a large participation at this point.</td>
</tr>
<tr>
<td>(Open source, etc.)</td>
<td></td>
</tr>
<tr>
<td>Active Development:</td>
<td>Current version in use is DTS Version 4.4, released in December 2015.</td>
</tr>
<tr>
<td>Language Support:</td>
<td>English</td>
</tr>
<tr>
<td>Server-side Operating System (OS)/Platform:</td>
<td>Java™, JBoss® AS 7</td>
</tr>
<tr>
<td>Client-side OS/Platform:</td>
<td>Client applications are written in Java™, and as such have wide platform support. Also, browser access for browsing and searching terminology included.</td>
</tr>
</tbody>
</table>
Terminology Database Storage Options:
Windows®:
- Oracle® Database 10g or 11g Standard or Enterprise Edition
- InterSystems Caché 2012.2 or later
- IBM DB2® 9.7 Workgroup or Enterprise Edition
- MySQL 5.5

Linux:
- Oracle Database 10g or 11g Standard or Enterprise Edition
- InterSystems Caché 2012.2 or later
- IBM DB2 9.7 Workgroup or Enterprise Edition
- MySQL 5.5

API/Interoperability Capabilities:
Java™ and .NET Application APIs, Web services (Version 4). CTS2 compliant web interface on development roadmap for 2013, but not included in the initial version 4 release. Option exists to develop a subset of CTS2 interface implementation.

Adopters:
- Amgen
- Axolotl
- Canada Health Infoway
- CHCA
- Elsevier
- Epocrates
- Harris
- Hong Kong Hospital Authority and Hong Kong MoH
- HP (Federal and S&L)
- Humedica
- IBM
- JEMBI (South Africa)
- Kaiser
- MModal/MedQuist
- Next Gen
- Premier
- NASA
- New York State Office of Mental Health
- SSA
- RIQI
- Telus (Canada)
- University of Utah
- VA
- WoltersKluwer-Medispan
Additional design information for the terminology service architecture to support utilization of terminologies such as SNOMED CT is documented in the document titled \textit{IHS Terminology Services – High-level Technical Design Version 1.5}. 
3.0 Implementation and Maintenance

The BSTS APIs are designed to provide a MUMPS-based programming interface for RPMS development teams to work with terminology data. The APIs in turn, use a web service interface to interact with the terminology servers, with the current implementation being an interface with the Apelon DTS 4.4 terminology service.

3.1 General Information

The following table shows the prerequisite patch requirements:

Table 3-1: Prerequisite Patch Requirements

<table>
<thead>
<tr>
<th>Package</th>
<th>Minimum Version</th>
<th>Brief Patch Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IHS STANDARD TERMINOLOGY</td>
<td>Version 2.0 Patch 2</td>
<td>The version 2.0 patch 2 release of the IHS STANDARD TERMINOLOGY (BSTS) package.</td>
</tr>
</tbody>
</table>

3.2 System Requirements

The following table shows the versions of other packages that should be installed for BSTS to work properly. These packages have not been marked as required for this release as they will have already been installed in any RPMS environment.

Table 3-2: System Requirements

<table>
<thead>
<tr>
<th>Module</th>
<th>Minimum Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensemble 2012 or HealthShare 2017</td>
<td>v2012.2 (Ensemble) or v2017.2.2 (HealthShare)</td>
</tr>
<tr>
<td>VA FileMan (DI)</td>
<td>v22.0 Patch 1018</td>
</tr>
<tr>
<td>IHS/VA Utilities (XB)</td>
<td>v3.0 through Patch 11</td>
</tr>
<tr>
<td>IHS Kernel Toolkit (XT)</td>
<td>v7.3 through Patch 1017</td>
</tr>
<tr>
<td>VA Kernel (XU)</td>
<td>v8.0 Patch 1018</td>
</tr>
</tbody>
</table>

3.3 Package-wide Variables

There are no package-wide BSTS variables in RPMS.
3.4 Security Keys

The security keys that govern BSTS, which can be assigned to users, are shown in Table 3-3.

Table 3-3: Security Keys

<table>
<thead>
<tr>
<th>Key Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTSZMENU</td>
<td>This security key should only be assigned to those persons, who will manage the BSTS system, and should not be given to the general RPMS user population.</td>
</tr>
</tbody>
</table>

In addition, the BSTSRPC option must be assigned to each user as a secondary menu option in order for the utility to work correctly.

3.5 Codeset Updates

3.5.1 Update Methods

The BSTS application uses a number of different codesets and custom mappings. Updates to these codesets and mappings are available for retrieval from the connection to the DTS server. Information can be retrieved in two different ways.

First, an automated process will check daily to see if each codeset version number has changed from what is on file locally. If the version numbers of a codeset are different, it will kick off a background process to refresh that codeset. With the release of Version 1 Patch 7, several codesets have been grouped together and are processed all at once. Codesets 32777, 32779, 32780, as well as subset modifications and RxNorm NDC/VUID lookups are all processed at once. Whenever a new 32777, 32779 or 32780 codeset is released, all of the codesets and the subsets will get updated. This is done to eliminate having to refresh the same concepts multiple times during an update cycle. Logic is still in place to guarantee periodic subset refreshes. Subset refresh frequency is based on the BSTS SITE PARAMETERS file REFRESH SUBSETS EVERY # DAYS field value. If the number of days between subset refreshes (including refreshes done as part of a 32777/32779/32780 update) exceeds the days specified by the parameter, then a subset refresh background process will be kicked off. These background processes are scheduled to run after six o’clock PM at the site. With the release of BSTS v2.0 Patch 3, this start time can be changed by assigning a new start time in the PROCESS START TIME field definition found in the Check Terminology Web Service Status option. See Section 4.1.6 for more information on how to adjust this setting.

The second method to updating codesets and mappings is by manually kicking of an update using the Refresh IHS Standard Terminology Local Cache option which is explained in Section 4.1.5 of this document. Running this option will immediately kick off a background process to update the specified codeset or mapping.
Figure 3-1 shows the list of codesets delivered with the BSTS application. The codesets listed below which have a CURRENT VERSION assigned are capable of being updated using the update mechanisms described above. To refresh the 32779 or 32780 codesets, select 32777 from the list and all will be updated. Note that new content could have been delivered since the release of Version 2.0 Patch 3, so the versions listed may not line up with the versions currently loaded at the sites.

<table>
<thead>
<tr>
<th>CODE</th>
<th>CODESET</th>
<th>CURRENT</th>
<th>COMPLETED</th>
<th>SUBSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>ICD-9-CM-C1</td>
<td>20200301</td>
<td>04/23/20</td>
<td>03/23/20</td>
</tr>
<tr>
<td>36</td>
<td>SCTUSEXT</td>
<td>20191202</td>
<td>04/23/20</td>
<td>04/16/20</td>
</tr>
<tr>
<td>5102</td>
<td>LOINC-3</td>
<td>201900712</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>5140</td>
<td>ICD10CM</td>
<td>201900712</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>5180</td>
<td>UNII</td>
<td>201900712</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>17161</td>
<td>SCT-US-MAP_ICD9CM</td>
<td>201900712</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32768</td>
<td>32768</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32769</td>
<td>N32769</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32770</td>
<td>N32770</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32771</td>
<td>32771</td>
<td>13</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32772</td>
<td>32772</td>
<td>8</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32773</td>
<td>32773</td>
<td>15</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32774</td>
<td>32774</td>
<td>4</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32775</td>
<td>32775</td>
<td>1</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32777</td>
<td>32777</td>
<td>45</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32778</td>
<td>32778</td>
<td>1</td>
<td>03/29/16</td>
<td></td>
</tr>
<tr>
<td>32779</td>
<td>32779</td>
<td>45</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32780</td>
<td>32780</td>
<td>17</td>
<td>04/23/20</td>
<td></td>
</tr>
<tr>
<td>32784</td>
<td>N32784</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35290</td>
<td>SCT-US-MAP_ICD10CM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35291</td>
<td>SCT-US-MAP_ICD9CM</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-1: BSTS application codesets

3.5.2 Periodic Updates

The IHS terminology staff intends to provide periodic updates to the BSTS codesets described above. Some of the more common updates are described below:

- **SNOMED CT subsets** – The plan is to provide updates to subsets every thirty to sixty days. These updates will be pulled down from the server based on the BSTS SITE PARAMETERS file REFRESH SUBSETS EVERY # DAYS field value. If the subset updates are desired earlier, the update process can be manually started using the **Refresh IHS Standard Terminology Local Cache** option.
• SNOMED to ICD10 mappings – As mapping updates become fine-tuned, new releases of the 32777, 32779 and 32780 codesets will become available. The updates, once loaded into the DTS Production server, will be pulled down automatically by the site approximately one day later (depending on the time that the server is updated with the new mappings). The update can also be manually kicked off, if desired, using the Refresh IHS Standard Terminology Local Cache option.

• SNOMED CT codeset updates – Twice a year a new SNOMED CT codeset version will become available. These updates, once loaded into the DTS Production server, will begin to automatically be refreshed at the sites within approximately one day.

• RxNorm codeset updates – Multiple times per year new versions of the RxNorm codeset will become available. These updates will be downloaded to the sites approximately one to two days after being loaded onto the DTS Production server. Whenever a new RxNorm codeset is loaded, the following processes will be kicked off:
  − Kick off the pharmacy DQ^APSPRCUI process to update the RXCUI field in the DRUG file with new RxNorm values. (BSTS v2.0 Patch 3 change)
  − The RxNorm subset refresh (see next bullet point) will be kicked off. (BSTS v2.0 Patch 3 change)

• RxNorm subsets –RxNorm subsets can also be downloaded at the sites. Subsets will automatically be updated based on the SITE PARAMETERS file REFRESH SUBSETS EVERY # DAYS field value. If subset updates are desired earlier, the update process can be manually started using the Refresh IHS Standard Terminology Local Cache option.

• Allergy (codeset 32773), Signs & Symptoms (codeset 32772), Drug Ingredients (codeset 32771) and Med Route (codeset 32774) codesets will occasionally be modified. With the release of BSTS v2.0 Patch 3, the following will occur:
  − When there is an update to codesets 32771, 32772 or 32773 the GMR Allergy process BACKLOAD^GMRAZRXU will be kicked off
  − When there is an update to codeset 32774 the pharmacy process UPROUTE^APSPRCUI will be kicked off.
3.6 DTS Connection Failover Handling

3.6.1 Regular API Calls

With the release of Version 1 Patch 2 (which automatically shut the DTS link off if a connection error was received), it was determined that occasionally network or other disruptions at the sites were causing requests to the DTS server to fail, even though the DTS server itself was up and running. These disruptions were causing sites’ DTS connections to revert to local mode fairly often. To address this issue, each web service call to the DTS server was modified so that it will immediately make another attempt at connecting to the server if the current attempt results in any error, other than a timeout error. The number of times that the process will attempt to make the call relies on the (currently hidden) BSTS WEB SERVICES ENDPOINT file RETRIES ON FAILURE field. The default value for this field is one, meaning if a call to DTS errors out, it will try one more time before turning off the link. Typically, if the DTS server is not down, the second attempt will succeed. If a site does however experience frequent network disruptions, incrementing this setting to a two or three (using FileMan to modify the setting) might allow for more connections to complete and for the DTS link to therefore remain online.

3.6.2 Background Processing

As detailed in the Section 3.5, the BSTS application relies on background processing to keep its codesets and mappings up to date. In order for the updates to work properly, it is necessary that the site link to the DTS server be up and running while the processes are running. The following special logic will attempt to handle connection disruptions while a background process is running:

- The immediate call retry logic detailed in Section 3.6.1 has been implemented for all calls used by the background processes
- Prior to making each remote API call, logic will attempt to force the DTS link back online. This logic will override any attempts by users to turn off the link manually using the Turn off the DTS Link selection in the Check Terminology Web Service Status BSTS menu option. If a user turns the link off using the option, the next call by the background process will immediately turn it back on.
- Should an actual interruption occur between the site and the DTS server, meaning the connection attempts detailed in Section 3.6.1 all fail, further logic is in place to try to get the process to finish. This additional logic functions as follows:
− After the failover handling documented in Section 3.6.1 fails to make a successful connection, background processes will attempt to repeat the handling documented in Section 3.6.1. The number of times this process is repeated depends on the value of the (hidden) **MAX FAILURES BEFORE WAITING** field in the **BSTS WEB SERVICE ENDPOINT** file. The default value for this field is ten, meaning that the Section 3.6.1 logic will be repeated ten times before moving to the next step in the failover logic.

− If a successful connection to the DTS server is still not established using the prior logic, the background process will enter a wait state. For the first six times this state is reached, the process will wait for five minutes before trying to make connection to the DTS server again using the same failover logic listed in the prior steps. This means that background processes will attempt to connect after waiting for 5 minutes, 10 minutes, 15 minutes, 20 minutes, 25 minutes, and finally 30 minutes. If a successful connection cannot be made after this period, then the background processes will wait for a longer period before attempts. The length of this wait period is determined by the value of the (hidden) **UPDATE FAILURE WAIT TIME** field in the **BSTS WEB SERVICE ENDPOINT** file. The default value for this field is two hours, meaning that after the initial checks of every five minutes for the first thirty minutes, the remaining checks will occur after two and a half hours, four and a half hours, six and a half hours, eight and a half hours, ten and a half hours, and twelve and a half hours.

− If after twelve and a half hours, a connection to the DTS cannot be made, the background process will terminate. If the background process still has not been completed, the same process will be attempted again the next time the background process runs which should be after six o’clock PM (depending on the new PROCESS START TIME setting released in BSTS v2.0 Patch 3). With the release of BSTS v2.0 Patch 3, the process will restart from the point that it previously stopped instead of from the beginning as it used to do. If the site does not wish to wait for the job to automatically restart they can run the **Kick off background process now** option under the **Other Options** selection in the **Check Terminology Web Service Status** option.

Table 3-4 illustrates the failover logic call attempts for the background processing when the connection to the DTS server is not available and the field settings are set to the default values.

**Table 3-4: Failover logic attempts**

<table>
<thead>
<tr>
<th>Elapsed Time (minutes)</th>
<th>Call Attempt</th>
<th>Call Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>Attempt 1 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>2</td>
<td>Attempt 1 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>3</td>
<td>Attempt 2 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>Elapsed Time (minutes)</td>
<td>Call Attempt</td>
<td>Call Result</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>0</td>
<td>4</td>
<td>Attempt 2 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>5</td>
<td>Attempt 3 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
<td>Attempt 3 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>7</td>
<td>Attempt 4 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>8</td>
<td>Attempt 4 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>9</td>
<td>Attempt 5 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>10</td>
<td>Attempt 5 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>11</td>
<td>Attempt 6 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>12</td>
<td>Attempt 6 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>13</td>
<td>Attempt 7 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>14</td>
<td>Attempt 7 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>15</td>
<td>Attempt 8 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>16</td>
<td>Attempt 8 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>17</td>
<td>Attempt 9 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>18</td>
<td>Attempt 9 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>19</td>
<td>Attempt 10 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>Attempt 10 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>21</td>
<td>Attempt 1 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>22</td>
<td>Attempt 1 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>23</td>
<td>Attempt 2 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>Attempt 2 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>Attempt 3 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>26</td>
<td>Attempt 3 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>27</td>
<td>Attempt 4 - Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>28</td>
<td>Attempt 4 - Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>29</td>
<td>Attempt 5 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>Attempt 5 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>31</td>
<td>Attempt 6 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>32</td>
<td>Attempt 6 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>33</td>
<td>Attempt 7 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>34</td>
<td>Attempt 7 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>35</td>
<td>Attempt 8 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>36</td>
<td>Attempt 8 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>37</td>
<td>Attempt 9 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Elapsed Time (minutes)</th>
<th>Call Attempt</th>
<th>Call Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>38</td>
<td>Attempt 9 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>39</td>
<td>Attempt 10 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>10</td>
<td>41</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>60</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>15</td>
<td>61</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>80</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>20</td>
<td>81</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>100</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>25</td>
<td>101</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>120</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>30</td>
<td>121</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>140</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>150</td>
<td>141</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>160</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>270</td>
<td>161</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>270</td>
<td>180</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>390</td>
<td>181</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>390</td>
<td>200</td>
<td>Attempt 10 – Section 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>510</td>
<td>201</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>510</td>
<td>220</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>630</td>
<td>221</td>
<td>Attempt 1 – Sect – 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>630</td>
<td>240</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;</td>
</tr>
<tr>
<td>750</td>
<td>241</td>
<td>Attempt 1 – Sect 3.6.1 try 1 &lt;fail&gt;</td>
</tr>
<tr>
<td>Elapsed Time (minutes)</td>
<td>Call Attempt</td>
<td>Call Result</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>750</td>
<td>260</td>
<td>Attempt 10 – Sect 3.6.1 try 2 &lt;fail&gt;. Upon failure, the background process will terminate, and the process will be attempted again after six PM</td>
</tr>
</tbody>
</table>
4.0 Menu Diagram

RPMS menus in the BSTS system:

**IHS Standard Terminology Management** [BSTSMENU]. This menu option requires key BSTSZMENU and contains the following six options for managing BSTS:

- **Add/Edit Terminology Web Service** [BSTS WEB SERVICE]. Updates information about web services used by the site. This option requires the BSTSZMENU security key.

- **Edit Terminology Site Parameters** [BSTS EDIT SITE PARAMETERS]. Updates site specific configuration settings. This option requires the BSTSZMENU security key.

- **Description Id Population Utility** [BSTS DESC ID UTILITY]. This option reviews DTS description ids recorded in several files and makes sure that a term can be retrieved for that description id.

- **Terminology Web Service Test** [BSTS TEST WEB SERVICE]. Performs a test call to a web service. This option requires the BSTSZMENU security key.

- **Refresh IHS Standard Terminology Local Cache** [BSTS REFRESH LOCAL CACHE]. This option allows users to refresh the SNOMED with US Extensions codeset subsets or lets users select a custom mapping codeset and refresh its values.

- **Check Terminology Web Service Status** [BSTS CHECK WEB SERVICE]. This option is a utility which allows site managers to monitor and control the DTS interface link. With the release of BSTS Version 2.0 Patch 1, it now also provides reporting options which display update history.

4.1 Menu Option Descriptions

4.1.1 Add/Edit Terminology Web Service

Site Managers will use this option to enter the connection properties for the server (or servers) that their site will use to retrieve codeset information. The Version 2.0 installation process changes the value of the PORT NUMBER field to 44200. Figure 4-1: Sample BSTS WEB SERVICE ENDPOINT file entry shows a sample display for a connection to the DTS production server:

```
Select IHS Standard Terminology Management <TEST ACCOUNT> Option: WEB
Add/Edit Terminology Web Service
Select BSTS WEB SERVICE ENDPOINT NAME: PRODUCTION
URL ROOT: https://dtsservices.ihs.gov Replace
```
PORT NUMBER: 44200/
TYPE: DTS4/
TIMEOUT OVERRIDE: 90/
CONNECTION TIMEOUT OVERRIDE: 4/
USERNAME: DTSUser/
PASSWORD: DTSPW!/
SERVICE PATH: /soap/
SSL/TLS CONFIGURATION: SNOMEDServer/
CHECK FOR DTS CONNECTION ON:
CHECK FOR CONNECTION AFTER:
MAXIMUM REMOTE SEARCH TIME:

Figure 4-1: Sample BSTS WEB SERVICE ENDPOINT file entry

Some of the properties listed above are site adjustable. They can be modified to account for network issues and site preferences. These properties are explained as follows:

**TIMEOUT OVERRIDE** – This is a maximum time, in seconds, a DTS web service call will wait for a query to finish before it quits (if null, the default is 60 seconds). If a DTS call exceeds this value, the BSTS application will switch over to local access mode. Note that this property pertains to all calls to DTS. Many of these calls happen in the background and are not apparent to the user. Care should be taken to set this property to a value less than 60 seconds. To control DTS maximum DTS search times, please adjust the **MAXIMUM REMOTE SEARCH TIME** property instead of this property.

**CONNECTION TIMEOUT OVERRIDE** – This is the maximum time, in seconds, a DTS web service call will wait for a connection to be established to the DTS server (if null, the default is 2 seconds). Sites with slower network connections may need to adjust this setting to a higher value. Every attempt should be taken, however, to keep this value as low as possible to avoid longer waits during SNOMED concept lookups. If the time to establish a connection with the DTS server exceeds this value, the BSTS application will switch over to local access mode.

**CHECK FOR DTS CONNECTION ON** – When the DTS server is operating in local access mode, this property will contain a date and time in the future. This is the date and time after which the application will attempt to contact the DTS server again to see if it is online. If the value of this property is null, the connection to the DTS server is operating successfully.

**MAXIMUM REMOTE SEARCH TIME** – If, after a search call to DTS is completed, it is determined that, even though the call was successful, it still took longer to complete than the number of seconds listed in this field, it will switch the server to local access mode. This value should be less than or equal to the **TIMEOUT OVERRIDE** value.
CHECK FOR CONNECTION AFTER – When the DTS server switches to local access mode, it will remain in local access mode until the number of minutes specified in this property are reached. When that wait period has been reached, the next call made to DTS after that will attempt to restore connection to the server. If the server is back online or search calls are now returning within the allowable MAXIMUM REMOTE SEARCH TIME, the DTS link will be switched back on.

4.1.2 Edit Terminology Site Parameters

This option controls which BSTS WEB SERVICE ENDPOINT entry to use for DTS server connections. Once defined, this entry most likely will never need to be adjusted by the site. There are also two parameters which can be adjusted to suit a site’s preferences. Those parameters are the REFRESH SUBSETS EVERY # DAYS parameter and the DAYS TO KEEP ERR RESPONSES parameter which are documented below. Figure 4-2 shows a typical entry in the BSTS SITE PARAMETERS file.

![Figure 4-2: Sample BSTS SITE PARAMETERS File Entry]

REFRESH SUBSETS EVERY # DAYS – Previous content releases of codeset and updates were included in KIDS releases. Future content releases will now be periodically pulled down from the Apelon DTS server. This setting controls how often to refresh the subsets stored locally at the site with the information stored on the remote DTS server. The minimum value for this parameter is fourteen days and the default setting is sixty days. It is expected that updates will be made available for download every thirty to sixty days. Since this subset refresh process can be system intensive and take several hours to run, care should be taken to keep this setting as high a value as possible. If desired, the subset refresh process can always be kicked off manually, if a subset update is released and the content is needed immediately.

DAYS TO KEEP ERR RESPONSES – BSTS now logs any attempted connections to the DTS server which did not complete successfully. This logged information is very helpful in troubleshooting connection issues at the site. Allowable values for this parameter are between seven days and thirty days. The default setting is fourteen days. An automatic nightly purge will now run which purge logged data which is older than the value specified in this parameter.
4.1.3 Description Id Population Utility

When sites upgraded from using Version 1 and Patch 1 releases of the BSTS application to using Patch 2, new SNOMED codeset content was made available. It was determined that the SNOMED content made available from Apelon for Patch 2 contained duplicate terms as well as some existing terms which were active in the previous release but were now inactive. For any such term that was used in EHR while sites were running under the initial release, Version 1, or Patch 1, sites were encountering issues with how the SNOMED term was getting displayed. In a number of cases, such as on the Integrated Problem List, terms were now showing up with an asterisk (*).

As a fix for these issues at the sites, a utility was developed which located the terms with issues and attempts to replace them with a suitable SNOMED term. The utility has two options. The first option (option C) allows sites to check for issues. If issues are found during the check, the user will be prompted to fix the issues. They can also choose to run the option to fix the issues directly by choosing the (R) option in the menu. This option kicks off a background process (which starts two minutes in the future) which loops through several files and attempts to fix the identified issues.

This utility has been included as an option in the BSTS menu which sites can run if they encounter such issues. Figure 4-3 shows a sample run of the utility check and fix options. Note that the issues encountered, which are shown below, will differ at each site. It is also possible that there is not a replacement SNOMED term for the one on file, so it may not be able to be fixed.

<table>
<thead>
<tr>
<th>Select IHS Standard Terminology Management Option: DES Description Id Population Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>This utility will loop through files that contain SNOMED description ids and will check to make sure a term can be found for that description id. If a term cannot be found, it attempts to look in DTS for an exact match. For each match that is found the entry gets replaced with the new entry.</td>
</tr>
</tbody>
</table>

Select one of the following:

- C Check for Missing Concept Detail
- R Run Background Process to Fix Bad Entries
- Q Quit

Enter response: Check for Missing Concept Detail

Are you sure you wish to proceed? ? No// YES

Reviewing PROBLEM file entries:
Problem IEN Patient Description Id

Reviewing PROVIDER NARRATIVE entries:
IEN Description Id
Reviewing V POV entries:

<table>
<thead>
<tr>
<th>VPOV IEN</th>
<th>Patient</th>
<th>Visit</th>
<th>Description Id</th>
</tr>
</thead>
<tbody>
<tr>
<td>680509</td>
<td></td>
<td>229642003</td>
<td></td>
</tr>
<tr>
<td>680510</td>
<td></td>
<td>398760006</td>
<td></td>
</tr>
</tbody>
</table>

Reviewing FAMILY HISTORY entries:

<table>
<thead>
<tr>
<th>IEN</th>
<th>Patient</th>
<th>Description Id</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Concepts without detail were encountered

Would you like to job off the fix option now? ? No// **YES**

This option kicks off a background process which will attempt to fix concepts with no detail associated with them.

Are you sure you wish to proceed? ? No// **YES**

---

**4.1.4 Terminology Web Service Test**

This option allows users to test the DTS server to see if it is properly returning results. The option is documented in the BSTS Version 2.0 *Installation Manual*.

**4.1.5 Refresh IHS Standard Terminology Local Cache**

With the release of BSTS Version 1.0 Patch 3, sites now have the ability to manually retrieve content updates made available for download. Sites can run this option to immediately get these content updates. This option kicks off a background task which will refresh the desired content. Depending on the selection, the process could take several hours to complete. Only one background process can be running at a time. Figure 4-4 shows a sample process being kicked off.

---

**Select IHS Standard Terminology Management Option: REF Refresh IHS Standard Terminology Local Cache**

This option allows sites to manually refresh IHS Standard Terminology (BSTS) information cached locally at the site. Using this option, the subsets associated with the 'SNOMED with US Extensions' codeset can be refreshed with up to date information retrieved from the Apelon DTS server. This option also allows custom codeset mappings to be refreshed with current mappings available through DTS.

Are you sure you want to do this? NO// **YES**

Select one of the following:

- 36 SNOMED CT US Extension Subsets
- 32771 IHS VANDF
- 32772 GMRA Signs Symptoms
- 32773 GMRA Allergies with Maps
4.1.6 Check Terminology Web Service Status

This option allows site managers to quickly determine the status of the DTS connection, to turn the link On/Off, to adjust the setup properties for the connection, to run daily version checks, to start/stop an update process, and to run reports on the BSTS definitions. Figure 4-5 shows a sample display of this option.

Select IHS Standard Terminology Management Option: **STS** Check Terminology Web Service Status

Select BSTS WEB SERVICE ENDPOINT NAME: **PRODUCTION**

Current Server Status:

- **Web Service:** PRODUCTION
- **Current Status:** ONLINE
- **Offline Until:** N/A
- **Last Error Message:** N/A

Current Server Settings:

- **CHECK FOR CONNECTION AFTER:** 60 minutes (default)
- **CONNECTION TIMEOUT OVERRIDE:** 4 seconds
- **MAXIMUM REMOTE SEARCH TIME:** 60 seconds (default)
- **TIMEOUT OVERRIDE:** 90 seconds
- **ENABLE SEARCH LOGGING:** NO
- **NIGHTLY PROCESS START TIME:**
- **DAILY UPDATE CHECKS:** ENABLED
- **CONCEPT SELECTION LOGGING:** ENABLED
- **HIDE CUSTOM SETTINGS:** NO

1. Refresh Current information
2. Check DTS and Enable if Available
3. Turn off the DTS Link
4. Edit Server Settings
5. Other Options...

Select number or return to quit: (1-5):
When running the option, the user will be prompted to enter the web service to monitor. Most sites will only have one web service (PRODUCTION or PRODUCTION SERVER) set up.

Once a web service is selected, the current status of the selected server is displayed. The display shows whether the server is currently online and if it is not online, the last connection error encountered as well as when the system will try to turn the link back on. This option also displays whether a BSTS related process is currently running in the background. Figure 4-6 shows a sample status display (demonstrating that a Description Id Population Utility is current running.

<table>
<thead>
<tr>
<th>Current Server Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Service:</td>
</tr>
<tr>
<td>Current Status:</td>
</tr>
<tr>
<td>Offline Until:</td>
</tr>
<tr>
<td>Last Error Message:</td>
</tr>
<tr>
<td>Background process:</td>
</tr>
<tr>
<td>Checking V POV file entry:</td>
</tr>
</tbody>
</table>

Figure 4-6: Status option showing process running in the background

After selecting the appropriate server, along with the server status, the user will also be presented with a display similar to Figure 4-5, which shows some current BSTS settings as well as provides a number of options. The user has the following five options to select from:

- **Refresh Current information** – Running this option will refresh the current screen. It will not attempt to check to see if the DTS server is now available. It is possible that the screen display might change by running this option if the DTS server status became enabled/disabled by another process while attempting to perform a call to DTS.

- **Check DTS and Enable if Available** – This option will attempt to contact the DTS server. If the call is successful, it will place the server back online. If the call is not successful, it will update the Offline Until value to be the current date/time plus the number of minutes specified by the CHECK FOR CONNECTION AFTER property documented above.

- **Turn off the DTS Link** – Running this option will manually turn off the link to DTS for the specified amount of time.

- **Edit Server Settings** – This option will allow the setup properties specified earlier to be adjusted. In addition, a new ENABLE SEARCH LOGGING property, released with BSTS v2.0 Patch 1, allows a site to turn on and off logging of user search strings to DTS. See the Retrieve Search History from DTS entry in Section 4.1.6 for instructions on retrieving this logged information. For BSTS v2.0 Patch 3, the following settings were also added:
• **PROCESS START TIME** – The standard nightly process kicks off at 6:02 PM every night at the site. Setting this parameter to a different time will cause the process to kick off at that time. Note it may take a day for this setting to take effect.

• **DAILY UPDATE CHECKS** – Entering a 1 in this field will disable the daily update checks. This may be beneficial if a site is encountering networking issues and does not want a codeset up to be found which would in turn cause the update process to later run. Setting the field to 0 (or typing an at symbol [@] at the prompt) will re-enable the daily update checks.

• **LOG SELECTED CONCEPTS** – When this setting is enabled, all concepts selected using the BSTS SNOMED lookup utility will be recorded and sent to the DTS server. This is done so that terminologists can determine what concepts are in use the most so they can focus on those concepts when developing mappings. Setting the field to YES will turn on the logging while setting to NO (or typing the at symbol [@] at the prompt) will disable the logging.

• **HIDE CUSTOM SETTINGS** – Setting this property to YES will turn off the display of the settings in the main page. This is helpful when a background process is running which causes the screen to shift up requiring the user to scroll back to see all of the information. See Figure 4-7 for an example of a hidden display.

Select IHS Standard Terminology Management Option: **STS** Check Terminology
Web Service Status

Select BSTS WEB SERVICE ENDPOINT NAME: **PRODUCTION**

Current Server Status:
- Web Service: PRODUCTION
- Current Status: ONLINE
- Offline Until: N/A
- Last Error Message: N/A

Current Server Settings: HIDDEN

1. Refresh Current information
2. Check DTS and Enable if Available
3. Turn off the DTS Link
4. Edit Server Settings
5. Other Options...

Select number or return to quit: (1-5):

Figure 4-7: Status option showing hidden custom settings

**Other Options** – This option, introduced in BSTS v2.0 Patch 1, provides additional functionality to the BSTS application.
By selecting **Other Options**, the user will be presented with the following submenu shown in Figure 4-8.

```
Select number or return to quit: (1-5): 5

Other options menu
1. Run daily update checks
2. Kick off background process now
3. Terminate current background process
4. BSTS reporting
5. Retrieve Search History from DTS
6. Retrieve Log History from DTS

Select number or return to quit: (1-6): 
```

**Figure 4-8: Other options submenu**

The **Other Options** submenu displays the following choices:

**Run daily update checks** – This option, when run, will perform the daily codeset version checks. If any codesets are found to be out of date, it will put a task on the BSTS queue and schedule the update process to run. The task will be scheduled to run at 6:02 PM or whatever time is entered in the PROCESS START TIME setting listed above.

**Kick off background process now** – Running this option will kick off an update process which will process any BSTS tasks found on the queue. Any process that had previously been started but had errored out or was terminated (using the next option) will automatically start where it left off.

**Terminate current background process** – Running this option will stop any current background process that is running. This option is useful if a user is attempting to install a new BSTS patch and it won’t let them because a process is running. In such situations, the user can run the option to stop the process, install the new BSTS patch, and then run the **Kick off background process now** option to get the process running again.

**Retrieve Search History from DTS** – If search logging is turned on, running this option will return a listing of search strings attempted by site users. See Figure 4-9 for a sample search.

```
Select number or return to quit: (1-6): 5

DISPLAY BSTS SEARCH STRINGS USED

Display From Date:  T-7//

Display To Date:  T//
```
Maximum number of results to return:  (1-9999): 25/

DEVICE: HOME// Virtual

BSTS SEARCH HISTORY: 04/18/17 TO 04/25/17 - 25 MOST FREQUENTLY USED

<table>
<thead>
<tr>
<th>SEARCH STRING</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON COLD</td>
<td>9</td>
</tr>
<tr>
<td>JAUNDICE</td>
<td>5</td>
</tr>
<tr>
<td>ASTHMA</td>
<td>3</td>
</tr>
<tr>
<td>COUGH</td>
<td>2</td>
</tr>
<tr>
<td>AC OT MED</td>
<td>1</td>
</tr>
<tr>
<td>DIAB MEL</td>
<td>1</td>
</tr>
<tr>
<td>DIAB MELITUS</td>
<td>1</td>
</tr>
<tr>
<td>DIAB MELLITUS</td>
<td>1</td>
</tr>
<tr>
<td>RASH</td>
<td>1</td>
</tr>
</tbody>
</table>

<END OF REPORT>

Press 'Return to continue':

Figure 4-9: User search history

Retrieve Log History from DTS – Running this option will retrieve a history of events logged by the site to the DTS server. Some information included is weekly version updates, content updates, and patch installation records. Figure 4-10 shows a sample log history for a site.

Select number or return to quit: (1-6): 6

DISPLAY BSTS DTS LOG HISTORY

Display From Date: : T-7/

Display To Date: : T/

Maximum number of results to return:  (1-9999): 25/

DEVICE: HOME// Virtual

BSTS DTS LOG HISTORY: 04/18/17 TO 04/25/17 - LATEST 25 EVENTS LOGGED

<table>
<thead>
<tr>
<th>ID</th>
<th>EVENT DATE</th>
<th>EVENT TYPE</th>
<th>CODESET</th>
<th>EVENT NAME</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1025</td>
<td>4/25/2017@12:25</td>
<td>UPDE</td>
<td>32774</td>
<td>CURRENT</td>
<td>4</td>
</tr>
<tr>
<td>1024</td>
<td>4/25/2017@12:24</td>
<td>UPDS</td>
<td>32774</td>
<td>CURRENT</td>
<td>3</td>
</tr>
<tr>
<td>1023</td>
<td>4/25/2017@12:24</td>
<td>UPDE</td>
<td>32772</td>
<td>CURRENT</td>
<td>5</td>
</tr>
<tr>
<td>1022</td>
<td>4/25/2017@12:17</td>
<td>UPDS</td>
<td>32772</td>
<td>CURRENT</td>
<td>4</td>
</tr>
<tr>
<td>1021</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32780</td>
<td>VERSION</td>
<td>7</td>
</tr>
<tr>
<td>1020</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32779</td>
<td>VERSION</td>
<td>18</td>
</tr>
<tr>
<td>1019</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32777</td>
<td>VERSION</td>
<td>20</td>
</tr>
<tr>
<td>1018</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32774</td>
<td>VERSION</td>
<td>3</td>
</tr>
<tr>
<td>1017</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32773</td>
<td>VERSION</td>
<td>3</td>
</tr>
<tr>
<td>1016</td>
<td>4/25/2017@12:15</td>
<td>VRSN</td>
<td>32772</td>
<td>VERSION</td>
<td>4</td>
</tr>
</tbody>
</table>
EVENT TYPE LEGEND

EVENT TYPE     DESCRIPTION
INST           BSTS patch installed
UPDS           Update process started
UPDE           Update process finished
VRSN           Current DTS version

<EEND OF REPORT>

Press 'Return to continue':

Figure 4-10: Site log history

Retrieve Concept Selection History from DTS – If the setting to log selected concepts is turned on, this option can be run to show what concepts have been selected by the site. Figure 4-11 Shows a sample running of this option.

Select number or return to quit: (1-6): 7

DISPLAY BSTS SELECTED CONCEPTS

Display From Date: : T-7/
Display To Date: : T/

Enter the codeset to retrieve

Select one of the following:
   R      RxNorm
   S      SNOMED

Enter the codeset to return: SNOMED/

Maximum number of results to return: : (1-9999): 25/

DEVICE: HOME//   VIRTUAL    Right Margin: 80/

BSTS CONCEPT SELECTION HISTORY: 04/17/20 TO 04/24/20 - 25 MOST FREQUENTLY USED

TERM: Common cold                                      COUNT:  4
CONCID: 82272006

TERM: Fever                                               COUNT:  3
CONCID: 386661006

TERM: Open fracture subluxation of elbow joint           COUNT:  2
CONCID: 209261000
TERM: Asthma  COUNT: 1
CONCID: 195967001

TERM: Elbow fracture  COUNT: 1
CONCID: 309464009

TERM: Exercise-induced asthma  COUNT: 1
CONCID: 31387002

<END OF REPORT>

Press 'Return to continue':

Figure 4-11: Site concept selection log history

**BSTS reporting** – Selecting the BSTS reporting option will bring up the reporting submenu shown in Figure 4-12.

Select number or return to quit: (1-6): 4
BSTS REPORTING

Select the information to display

1. Current BSTS status display
2. BSTS codeset versions
3. Current BSTS processing queue
4. BSTS process history
5. BSTS error listing
6. All of the above information

Select number or return to quit: (1-6):

Figure 4-12: BSTS reporting submenu

Sections of the BSTS report information can be run individually by selecting options 1 through 5. Running option 6 displays all BSTS reporting information. See Figure 4-13 for a sample BSTS display.

Select number or return to quit: (1-6): 6
Display completed processes from date: : T-7/
Display error listing from date: : T-7/
Maximum number of errors to return: : (1-9999): 25/
DEVICE: HOME// 0;80;9999 Virtual

Current Server Status:

- Web Service: PRODUCTION
- Current Status: ONLINE
- Offline Until: N/A
- Last Error Message: N/A
Current Server Settings:

Site Parameters

NAME: 2013 DEMO HOSPITAL
REFRESH SUBSETS EVERY # DAYS:
LAST UPDATE CHECKS COMPLETED: APR 25, 2017

WEB SERVICE: PRODUCTION
PRIORITY: 1
DAYS TO KEEP ERR RESPONSES:

Selected Web Service

NAME: PRODUCTION
URL ROOT: https://dtsservices.ihs.gov
PORT NUMBER: 44200
TYPE: DTS4
TIMEOUT OVERRIDE: 60
CURRENT VERSION:
USERNAME: DTSUser
PASSWORD: DTSPW!
INACTIVE:
INACTIVE DATE:
SERVICE PATH: /soap
CONNECTION TIMEOUT OVERRIDE: 4
CHECK FOR DTS CONNECTION ON:
CHECK FOR CONNECTION AFTER:
MAXIMUM REMOTE SEARCH TIME:
SSL/TLS CONFIGURATION: SNOMEDServer
RETRIES ON FAILURE:
MAX FAILURES BEFORE WAITING: 2
UPDATE FAILURE WAIT TIME: 1

Current BSTS Codeset Version Information:

<table>
<thead>
<tr>
<th>CODE</th>
<th>CODESET</th>
<th>CURRENT VERSION</th>
<th>COMPLETED CHECKS</th>
<th>Subset DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>ICD-9-CM-C1</td>
<td>20160901</td>
<td>04/25/17</td>
<td>04/17/17</td>
</tr>
<tr>
<td>36</td>
<td>SCTUSEXT</td>
<td>20141103</td>
<td>04/25/17</td>
<td>03/08/17</td>
</tr>
<tr>
<td>1552</td>
<td>RXNORMR</td>
<td>20141103</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>5102</td>
<td>LOINC-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5140</td>
<td>ICD10CM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5180</td>
<td>UNII</td>
<td>201300910</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>17161</td>
<td>SCT-US-MAP_ICD9CM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32768</td>
<td>32768</td>
<td>32769</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32771</td>
<td>32771</td>
<td>1</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>32772</td>
<td>32772</td>
<td>3</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>32773</td>
<td>32773</td>
<td>4</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>32774</td>
<td>32774</td>
<td>1</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>32775</td>
<td>32775</td>
<td>20</td>
<td>04/25/17</td>
<td></td>
</tr>
<tr>
<td>32777</td>
<td>32777</td>
<td>1</td>
<td>12/04/15</td>
<td></td>
</tr>
<tr>
<td>32779</td>
<td>32779</td>
<td>18</td>
<td>04/25/17</td>
<td></td>
</tr>
</tbody>
</table>
Current BSTS Processing Queue:

No entries currently scheduled to run

Scheduled TaskMan BSTS processes:

(It is normal for a process to be scheduled to run more than once)

<table>
<thead>
<tr>
<th>TASKMAN TASK</th>
<th>SCHEDULED</th>
<th>RUN AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROC^BSTSVOFL</td>
<td>04/25/17@09:43</td>
<td>04/25/17@18:02</td>
</tr>
<tr>
<td>CHECK^BSTSVRSN</td>
<td>04/25/17@12:16</td>
<td>04/26/17@10:30</td>
</tr>
</tbody>
</table>

BSTS Processing History: 04/18/17 to present

<table>
<thead>
<tr>
<th>UPDATE</th>
<th>SCHEDULED</th>
<th>STARTED</th>
<th>COMPLETED</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/25/17@12:16</td>
<td>04/25/17@12:25</td>
<td>04/25/17@12:25</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/25/17@12:16</td>
<td>04/25/17@12:25</td>
<td>04/25/17@12:25</td>
</tr>
<tr>
<td>CDST^BSTSVRSC:32774</td>
<td>04/25/17@12:16</td>
<td>04/25/17@12:24</td>
<td>04/25/17@12:25</td>
</tr>
<tr>
<td>CDST^BSTSVRSC:32772</td>
<td>04/25/17@12:16</td>
<td>04/25/17@12:17</td>
<td>04/25/17@12:24</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/25/17@09:43</td>
<td>04/25/17@12:02</td>
<td>04/25/17@12:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/25/17@09:43</td>
<td>04/25/17@12:02</td>
<td>04/25/17@12:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/24/17@10:32</td>
<td>04/24/17@18:02</td>
<td>04/24/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/24/17@10:32</td>
<td>04/24/17@18:02</td>
<td>04/24/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/23/17@10:32</td>
<td>04/23/17@18:02</td>
<td>04/23/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/23/17@10:32</td>
<td>04/23/17@18:02</td>
<td>04/23/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/22/17@10:32</td>
<td>04/22/17@18:02</td>
<td>04/22/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/22/17@10:32</td>
<td>04/22/17@18:02</td>
<td>04/22/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/21/17@10:32</td>
<td>04/21/17@18:02</td>
<td>04/21/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/21/17@10:32</td>
<td>04/21/17@18:02</td>
<td>04/21/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/20/17@10:32</td>
<td>04/20/17@18:02</td>
<td>04/20/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/20/17@10:32</td>
<td>04/20/17@18:02</td>
<td>04/20/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/19/17@10:32</td>
<td>04/19/17@18:02</td>
<td>04/19/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/19/17@10:32</td>
<td>04/19/17@18:02</td>
<td>04/19/17@18:02</td>
</tr>
<tr>
<td>STATUS^BSTSAPIL</td>
<td>04/18/17@10:32</td>
<td>04/18/17@18:02</td>
<td>04/18/17@18:02</td>
</tr>
<tr>
<td>EPURGE^BSTSVOFL</td>
<td>04/18/17@10:32</td>
<td>04/18/17@18:02</td>
<td>04/18/17@18:02</td>
</tr>
</tbody>
</table>

BSTS error listing: 04/18/17 to present. Last 25 errors

<table>
<thead>
<tr>
<th>ERROR DATE</th>
<th>ERROR MESSAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/25/17@12:25</td>
<td>DETAIL<del>BSTSCMCL: 0</del>ERROR #6059: Unable to open TCP/IP socket to server dtsservices.ihs.gov:44299-4.022202</td>
</tr>
<tr>
<td>04/25/17@12:25</td>
<td>DETAIL<del>BSTSCMCL: 0</del>ERROR #6059: Unable to open TCP/IP socket to server dtsservices.ihs.gov:44299-4.017057</td>
</tr>
<tr>
<td>04/25/17@12:25</td>
<td>DETAIL<del>BSTSCMCL: 0</del>ERROR #6059: Unable to open TCP/IP socket to server dtsservices.ihs.gov:44299-4.037211</td>
</tr>
<tr>
<td>04/25/17@12:24</td>
<td>DETAIL<del>BSTSCMCL: 0</del>ERROR #6059: Unable to open TCP/IP socket to server dtsservices.ihs.gov:44299-4.008934</td>
</tr>
<tr>
<td>04/25/17@12:24</td>
<td>DETAIL<del>BSTSCMCL: 0</del>ERROR #6059: Unable to open TCP/IP socket to server dtsservices.ihs.gov:44299-4.017057</td>
</tr>
</tbody>
</table>
```
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/25/17</td>
<td>12:18</td>
<td>DETAIL-BSTSCMCL: 0-ERROR #6059: Unable to open TCP/IP socket</td>
</tr>
<tr>
<td>04/25/17</td>
<td>12:19</td>
<td>DETAIL-BSTSCMCL: 0-ERROR #6059: Unable to open TCP/IP socket</td>
</tr>
<tr>
<td>04/25/17</td>
<td>12:21</td>
<td>DETAIL-BSTSCMCL: 0-ERROR #6059: Unable to open TCP/IP socket</td>
</tr>
<tr>
<td>04/25/17</td>
<td>12:22</td>
<td>DETAIL-BSTSCMCL: 0-ERROR #6059: Unable to open TCP/IP socket</td>
</tr>
<tr>
<td>04/25/17</td>
<td>12:23</td>
<td>DETAIL-BSTSCMCL: 0-ERROR #6059: Unable to open TCP/IP socket</td>
</tr>
</tbody>
</table>

<END OF REPORT>

Press 'Return to continue':

Figure 4-13: BSTS option 6 – display all BSTS information
```
5.0 Routine

5.1 Routines with Description

This routine list describes each routine in this version.

Table 5-1: Routine descriptions

<table>
<thead>
<tr>
<th>Routine</th>
<th>Description</th>
<th>Included in Version 2.0 Patch 3 Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTS10P1</td>
<td>Pre/Post-Installation routine for Patch 1</td>
<td></td>
</tr>
<tr>
<td>BSTS10P2</td>
<td>Pre/Post-Installation routine for Patch 2</td>
<td></td>
</tr>
<tr>
<td>BSTS10P3</td>
<td>Pre/Post-Installation routine for Patch 3</td>
<td></td>
</tr>
<tr>
<td>BSTS10P4</td>
<td>Pre/Post-Installation routine for Patch 4</td>
<td></td>
</tr>
<tr>
<td>BSTS10P6</td>
<td>Pre/Post-Installation routine for Patch 6</td>
<td></td>
</tr>
<tr>
<td>BSTS10P7</td>
<td>Pre/Post-Installation routine for Patch 7</td>
<td></td>
</tr>
<tr>
<td>BSTS10P8</td>
<td>Pre/Post-Installation routine for Patch 8</td>
<td></td>
</tr>
<tr>
<td>BSTS2P01</td>
<td>Pre/Post-Installation routine for Version 2.0 Patch 1</td>
<td></td>
</tr>
<tr>
<td>BSTS2P02</td>
<td>Pre/Post-Installation routine for Version 2.0 Patch 2</td>
<td></td>
</tr>
<tr>
<td>BSTS2P03</td>
<td>Pre/Post-Installation routine for Version 2.0 Patch 3</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTS10PH</td>
<td>Hot fix environmental checking routine</td>
<td></td>
</tr>
<tr>
<td>BSTS1POS</td>
<td>Pre/Post-Installation routine for version 1.0 release</td>
<td></td>
</tr>
<tr>
<td>BSTS2PRE</td>
<td>Pre-Installation and environmental checking routine for Version 2.0 release</td>
<td></td>
</tr>
<tr>
<td>BSTS2PST</td>
<td>Post-installation routine for Version 2.0 release</td>
<td></td>
</tr>
<tr>
<td>BSTSAPI</td>
<td>Main API front end routine</td>
<td></td>
</tr>
<tr>
<td>BSTSAPIA</td>
<td>API program routine</td>
<td></td>
</tr>
<tr>
<td>BSTSAPIB</td>
<td>API program routine</td>
<td></td>
</tr>
<tr>
<td>BSTSAPIC</td>
<td>API program routine</td>
<td></td>
</tr>
<tr>
<td>BSTSAPID</td>
<td>API program routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSAPIF</td>
<td>API program routine</td>
<td></td>
</tr>
<tr>
<td>BSTSAPIL</td>
<td>API program routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSCDET</td>
<td>Routine which returns detail information for selected concepts</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSCFIX</td>
<td>Description Id population utility routine</td>
<td></td>
</tr>
<tr>
<td>BSTSCLAS</td>
<td>BSTS class delivery routine</td>
<td></td>
</tr>
<tr>
<td>BSTSCMCL</td>
<td>Routine containing Caché method calls</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSDSP</td>
<td>BSTS Status option utility routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSCTS0</td>
<td>Routine for DTS specific processing</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSDTS1</td>
<td>Second routine for DTS specific processing</td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>Description</td>
<td>Included in Version 2.0 Patch 3 Release</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>BSTSDTS2</td>
<td>Third routine for DTS specific processing</td>
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</tr>
<tr>
<td>BSTSDTS3</td>
<td>Fourth routine for DTS specific processing</td>
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<td>BSTSDTS4</td>
<td>Fifth routine for DTS specific processing</td>
<td>Yes</td>
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<tr>
<td>BSTSDTS5</td>
<td>Sixth routine for DTS specific processing</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSDTSC</td>
<td>Seventh routine for DTS specific processing</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSDTSM</td>
<td>Routine dealing with DTS mappings</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSLKP</td>
<td>Local lookup routine</td>
<td></td>
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<tr>
<td>BSTLSRC</td>
<td>Local SNOMED lookup routine</td>
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</tr>
<tr>
<td>BSTSMAP1</td>
<td>Routine to handle conditional SNOMED to ICD10 mappings</td>
<td></td>
</tr>
<tr>
<td>BSTSMSR</td>
<td>Routine to calculate measurements used by conditional logic</td>
<td></td>
</tr>
<tr>
<td>BSTSNDET</td>
<td>Contains documentation for detailed API information returned</td>
<td></td>
</tr>
<tr>
<td>BSTSRPC</td>
<td>RPC SNOMED search call</td>
<td></td>
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<tr>
<td>BSTSRPC1</td>
<td>RPC SNOMED search overflow routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSRPCU</td>
<td>RPC SNOMED search overflow routine</td>
<td></td>
</tr>
<tr>
<td>BSTSRPT</td>
<td>Inactive concept/term processing routine</td>
<td></td>
</tr>
<tr>
<td>BSTSSRCH</td>
<td>Routine containing search logic and concept detail retrieval</td>
<td></td>
</tr>
<tr>
<td>BSTSSTA</td>
<td>DTS status check routine</td>
<td>Yes</td>
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<tr>
<td>BSTSTST</td>
<td>DTS testing option routine</td>
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</tr>
<tr>
<td>BSTSUPD</td>
<td>Routine to update DTS parameters</td>
<td></td>
</tr>
<tr>
<td>BSTSUPRF</td>
<td>User preference handling routine</td>
<td></td>
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<tr>
<td>BSTSUTIL</td>
<td>BSTS utility function routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSUTL0</td>
<td>BSTS additional utility function routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVICD</td>
<td>Routine to handle retired ICD-10 codes</td>
<td></td>
</tr>
<tr>
<td>BSTSVOF1</td>
<td>Custom codeset version handling routine 4</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVOFL</td>
<td>Custom codeset version handling routine 3</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVRSC</td>
<td>Custom codeset version handling routine 2</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVRSN</td>
<td>Version and subset handling routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVRXN</td>
<td>RxNorm concept update routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSVUP0</td>
<td>DTS update overflow routine</td>
<td>Yes</td>
</tr>
<tr>
<td>BSTSWSV</td>
<td>Routine used to retrieve web service connection information</td>
<td></td>
</tr>
<tr>
<td>BSTSWSV1</td>
<td>Second routine used to retrieve web service connection information</td>
<td>Yes</td>
</tr>
</tbody>
</table>
5.2 API List

5.2.1 $$SEARCH^BSTSAPI

This API allows a specific code set version to be searched on for a particular input string. The result set can be filtered by subset, maximum records, and other filtering criteria.

**Parameter:** OUT

- **Data Type:** String
- **Description:** Output variable/global to return information specified in the OUT parameter.

**Parameter:** IN

- **Data Type:** String (Optional)
- **Description:**


**Values:**

- **Search String.** String to search on
- **Search Type:**
  - F-Fully specified name
  - S-Synonyms
- **Namespace ID** (Optional). Default is 36 (SNOMED CT US Extension). Available namespaces are:
  - 36 (SNOMED CT US Extension)
  - 5180 (FDA UNII)
  - 1552 (RxNorm R)
  - 32773 (GMRA Allergies with Maps)
  - 32772 (GMRA Signs Symptoms)
  - 32771 (IHS VANDF)
  - 32774 (IHS Med Route)
• **Filter Subset** (Optional). Subsets to filter on – separate multiple subsets using “~”. For “IHS SNOMED” (36) lookups, default to “IHS Problem List”. For “ALL SNOMED” lookups, passing “ALL” returns all allowable IHS PROBLEM ALL SNOMED subset terms.

• **Date to Check** (Optional). Default to Today (FileMan format)

• **Maximum Number of Concepts to Return** (Optional). Default 25

• **Return Info** (Optional). Default is all "PSBIXCAV":
  – P. Preferred
  – S. Synonym
  – B. Subset
  – I. IsA
  – X. ICD9/ICD10
  – C. Children
  – A. Associations
  – V. Inv. Associations

• **Add or Retire Date Information** (Optional). Pass 1 to not return date information

• **Batch Return** (Optional). Start at record # (used in conjunction with Return Info)

• **Batch Return** Concept Number (Optional). Number of concepts to return per batch (used in conjunction with Maximum Number of Concepts to Return)

• **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing

• **Debug** (Optional). Pass 1 to display debug information

• **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239

**Parameter:** VAR

**Data Type:** String List

**Description:** The VAR(#) list of records returns the following sections (based on the IN Parameters Maximum Number Concepts to Return and Return Info):

• **Concept ID/DTSID:**
  – VAR(#,"CON")=Concept ID
  – VAR(#,"DTS")=Internal DTS ID

• **Fully Specified Name:**
  – VAR(#,"FSN", "DSC")= Description ID of the FSN
VAR(#,"FSN","TRM")=Fully Specified Name
VAR(#,"FSN","XADT")=Date Added
VAR(#,"FSN","XRDT")=Date Retired

• **ICD Information - Multiple Records Returned** (CTR) – ICD-9 or ICD-10 will be returned in this section based on the date in the “Date to Check” input parameter (#5). If date is after the ICD-10 implementation date found in file 80.4, ICD-10 information will get returned. Otherwise ICD-9 information will get returned. Note that the values getting returned may change based on information passed into the call in the Mapping Parameters input piece:
  
  VAR(#,"ICD",CTR,"COD")=ICD9/ICD10 Code
  VAR(#,"ICD",CTR,"TYP")=Code Type(IC9 or 10D)
  VAR(#,"ICD",CTR,"XADT")=Date Added
  VAR(#,"ICD",CTR,"XRDT")=Date Retired

• **Legacy ICD-9** – Legacy ICD-9 information will always get returned in this node:
  
  VAR(#,"IC9",CTR,"COD")=ICD9 Code
  VAR(#,"IC9",CTR,"TYP")=Code Type(IC9)
  VAR(#,"IC9",CTR,"XADT")=Date Added
  VAR(#,"IC9",CTR,"XRDT")=Date Retired

• **IsA Information** - Multiple Records Returned (CTR):
  
  VAR(#,"ISA",CTR,"CON")=Concept ID of IsA Term (may be blank prior to lookup)
  VAR(#,"ISA",CTR,"DTS")=DTSId of the IsA Term
  VAR(#,"ISA",CTR,"TRM")=IsA Term Name
  VAR(#,"ISA",CTR,"XADT")=Date Added
  VAR(#,"ISA",CTR,"XRDT")=Date Retired

• **Association Information (SNOMED)** - Multiple Records Returned (CTR):
  
  VAR(#,"ASM",CTR,"CON")=SNOMED Concept CT Association
  VAR(#,"ASM",CTR,"DTS")=DTSId of the SNOMED Concept

• **Association Information (RxNorm)** - Multiple Records Returned (CTR):
  
  VAR(#,"ARX",CTR,"CON")=RxNorm Code Value Association
  VAR(#,"ARX",CTR,"DTS")=DTSId of the RxNorm Concept

• **Association Information (UNII)** - Multiple Records Returned (CTR):
  
  VAR(#,"ASN",CTR,"CON")=UNII Code Value Association
  VAR(#,"ASN",CTR,"DTS")=DTSId of the UNII Concept

• **Inverse Association Information (RxNorm)** - Multiple Records Returned (CTR):
– VAR(#,"IAR",CTR,"CON")=RxNorm Code Value of Inverse Association
– VAR(#,"IAR",CTR,"DTS")=DTSId of the RxNorm Concept
– VAR(#,"IAR",CTR,"TRM")=Inverse Association Term

• **Child Information** - Multiple Records Returned (CTR):
  – VAR(#,"CHD",CTR,"CON")=Concept ID of Child Term (may be blank prior to detail lookup)
  – VAR(#,"CHD",CTR,"DTS")=DTSId of the Child Term
  – VAR(#,"CHD",CTR,"TRM")=IsA Term Name
  – VAR(#,"CHD",CTR,"XADT")=Date Added
  – VAR(#,"CHD",CTR,"XRDT")=Date Retired

• **Lookup Problem Column Value** (Preferred Term Information for concept for Search Type [F] or Synonym or Preferred Term Information for Search Type [S]):
  – VAR(#,"PRB","DSC")=Description ID of a Pref Term (Type F) or Synonym/Pref Term (S)
  – VAR(#,"PRB","TRM")=Preferred Name of a Concept (F) or a Synonym/Pref Term (S)

• **Preferred Term Information**:
  – VAR(#,"PRE","DSC")=Description ID of Preferred Term
  – VAR(#,"PRE","TRM")=Preferred Term
  – VAR(#,"PRE","XADT")=Date Added
  – VAR(#,"PRE","XRDT")=Date Retired

• **Subset Information** - Multiple Records Returned (CTR):
  – VAR(#,"SUB",CTR,"SUB")=Subset Name
  – VAR(#,"SUB",CTR,"XADT")=Date Added
  – VAR(#,"SUB",CTR,"XRDT")=Date Retired

• **Synonym Information** - Multiple Records Returned (CTR):
  – VAR(#,"SYN",CTR,"DSC")=Description ID of Synonym
  – VAR(#,"SYN",CTR,"TRM")=Synonym Term
  – VAR(#,"SYN",CTR,"XADT")=Date Added
  – VAR(#,"SYN",CTR,"XRDT")=Date Retired

• **Date Concept Added/Retired**:
  – VAR(#,"XADT")=Date Added
  – VAR(#,"XRDT")=Date Retired

• **Prompt for Abnormal Findings** (1 – Yes/0 – No):
  – VAR(#,"ABN")=1/0

• **Prompt for Laterality** (1 – Yes/0 – No):
- \text{VAR}(\#, "LAT")=1/0

- **Fracture Healing Choices** (RD, RDN, RDNM, Null – No fracture healing):
  - \text{VAR}(\#, "HEAL")=RD/RDN/RDNM/Null

- **Is Concept a Designated Common Term** (1 – Yes/0 – No):
  - \text{VAR}(\#, "CMN")=1/0

- **Is Concept in the IHS PROBLEM ALL SNOMED subset** (1 – Yes/0 – No):
  - \text{VAR}(\#, "PAS")=1/0

- **Equivalent Concept Children**:
  - \text{VAR}(\#, "EQC", CTR, "CON")=Child Concept ID
  - \text{VAR}(\#, "EQC", CTR, "DTS")=Child DTSID
  - \text{VAR}(\#, "EQC", CTR, "XADT")=Child Date Added
  - \text{VAR}(\#, "EQC", CTR, "XRDT")=Child Date Retired

- **Equivalent Concept Match**:
  - \text{VAR}(\#, "EQM", "LAT")=Laterality
  - \text{VAR}(\#, "EQM", "DTS")=DTSID
  - \text{VAR}(\#, "EQM", "CON")=Concept ID
  - \text{VAR}(\#, "EQM", "XADT")=Date Added
  - \text{VAR}(\#, "EQM", "XRDT")=Date Retired

- **Interface Term**:
  - \text{VAR}(\#, "CTM", "TRM")=Interface Term
  - \text{VAR}(\#, "CTM", "DSC")=Interface Term Description ID

**Parameter**: <return value>

**Data Type**: String

**Description**:

Status^PrimaryErrorMsg^SecondaryErrorMsg

**Values**:

- **Status**:
  - 2: Remote information returned
  - 1: Local information returned
  - 0: No Information Returned

- **Primary Remote Error Message**

- **Secondary Remote Error Message** (if applicable)
5.2.2 $$CODESETS^BSTSAPI

This API returns a list of available terminology code sets supported by the Apelon DTS Version 4 software.

Parameter: OUT

  Data Type: String

  Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

  Data Type: String

  Description (Optional):


  Values:

    • Local (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.

    • Debug (Optional). Pass 1 to display debug information.

Parameter: VAR

  Data Type: String List

  Description: List of records in the format:

    Codeset ID ^ Codeset Code ^ Codeset Name

Parameter: <return value>

  Data Type: String

  Description:

    Status ^ PrimaryErrorMsg ^ SecondaryErrorMsg

  Values:

    • Status:

      – 2. Remote information returned

      – 1. Local information returned

      – 0. No Information Returned

    • Primary Remote Error Message

    • Secondary Remote Error Message (if applicable)
5.2.3 $\textit{VERSIONS}^{\textit{BSTSAPI}}$

This API will return a list of available versions for the supplied code set.

Parameter: OUT

Data Type: String

Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

Data Type: String

Description (Optional):


Values:

- **Namespace ID** (Optional). Default to SNOMED CT US Extensions (#36)
- **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.
- **Debug** (Optional). Pass 1 to display debug information.

Parameter: VAR

Data Type: String List

Description (List of records):

Version ID^Version Name^Version Release Date^Version Install Date

Parameter: $<\text{return value}>$

Data Type: String

Description:

Status^PrimaryErrorMsg^SecondaryErrorMsg

Values:

- **Status:**
  - 2: Remote information returned
  - 1: Local information returned
  - 0: No Information Returned
- **Primary Remote Error Message**
- **Secondary Remote Error Message** (if applicable)
5.2.4 **CVRSN\^BSTSAPI**

This API will return the current version in use for the supplied code set.

**Parameter:** OUT  
**Data Type:** String  
**Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN  
**Data Type:** String (Optional)  
**Description:**
**Values:**
- **Namespace ID** (Optional). Default to SNOMED CT US Extensions (#36).
- **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.
- **Debug** (Optional). Pass 1 to display debug information.

**Parameter:** VAR  
**Data Type:** String List  
**Description:** (List of records):
- Version ID^Version Name^Version Release Date^Version Install Date (if available).

**Parameter:** <return value>  
**Data Type:** String  
**Description:**
- Status^PrimaryErrorMsg^SecondaryErrorMsg  
**Values:**
- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- **Primary Remote Error Message**
- **Secondary Remote Error Message** (if applicable).
5.2.5  $$MPADVICE^BSTSAPI

This API will return map advice information for a particular SNOMED® Term.

Parameter: OUT

Data Type: String

Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

Data Type: String (Optional)

Description:


Values:

- Concept ID. The Concept ID to look up.
- Local (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- Exclude Info. Pass 1 to exclude add/retired date info from the output.
- Debug (Optional). Pass 1 to display debug information.

Parameter: VAR

Data Type: String List

Description: The VAR(#) list of records returns the mapping information on file for the specified concept. Multiple records per concept could be returned.

Format:

VAR(#,"MPADV","VAL")=Mapping Advice
VAR(#,"MPCVL","VAL")=Map Classification Information
VAR(#,"MPGRP","VAL")=Map Group
VAR(#,"MPPRI","VAL")=Map Priority
VAR(#,"MPRUL","VAL")=Map Rule
VAR(#,"MPTGN","VAL")=Map Target Name
VAR(#,"MPTGT","VAL")=Map Target Code

Parameter: <return value>

Data Type: String

Description:

Status^PrimaryErrorMsg^SecondaryErrorMsg
Values:

- **Status**:
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- **Primary Remote Error Message**
- **Secondary Remote Error Message** (if applicable)

### 5.2.6 ```SUBSET^BSTSAPI```

This API will return all of the available subsets that are available for a given code set.

**Parameter**: OUT

**Data Type**: String

**Description**: Output variable/global to return information specified in the VAR parameter that follows.

**Parameter**: IN

**Data Type**: String (Optional)

**Description**:


**Values**:

- Namespace ID (Optional). Default to SNOMED CT US Extension (#36).
- Local (Optional). Pass 1 or leave blank to perform local listing. Pass 2 for remote DTS listing.
- Debug (Optional). Pass 1 to display debug information.

**Parameter**: VAR

**Data Type**: String List

**Description**: The VAR(#) list of records returns the list of available subsets for the given namespace.

**Format**:

VAR(#)=Subset Name

**Parameter**: <return value>

**Data Type**: String

**Description**: Status^PrimaryErrorMsg^SecondaryErrorMsg
Values:

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned

- **Primary Remote Error Message**

- **Secondary Remote Error Message** (if applicable)

### 5.2.7 $$SUBLST^BSTSAPI$$

This API will return all of the concepts found in a specified subset. Since these results could be quite extensive, it is recommended that the results be returned in a scratch global.

**Parameter:** OUT

- **Data Type:** String
- **Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN

- **Data Type:** String (Optional)
- **Description:**
  

**Values:**

- **Subset** (Required). The name of the subset to list the concepts for.
- **Namespace ID** (Optional). Default to SNOMED CT US Extension (#36).
- **Local** (Optional). Pass 1 or leave blank to perform local listing. Pass 2 for remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information.
- **Interface Term** (Optional). Pass 1 to return Interface Term (if available) instead of preferred term

**Parameter:** VAR

- **Data Type:** String List
- **Description:**

**Format:**

VAR(#)=Concept ID^Description ID of Preferred Term^Preferred Term
Parameter: <return value>

Data Type: String

Description:
Status^PrimaryErrorMsg^SecondaryErrorMsg

Values:
- Status:
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- Primary Remote Error Message
- Secondary Remote Error Message (if applicable)

5.2.8 $$VALTERM^BSTSAPI

This API will determine whether a supplied term is a valid in a given code set and version.

Parameter: OUT

Data Type: String

Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

Data Type: String (Optional)

Description:

Values:
- Search Term. The exact term for lookup.
- Codeset ID (Optional). Default to SNOMED CT US Extension (‘36’). Available namespaces are:
  - 36 (SNOMED CT US Extension)
  - 5180 (FDA UNII)
  - 1552 (RxNorm R)
  - 32773 (GMRA Allergies with Maps)
  - 32772 (GMRA Signs Symptoms)
  - 32771 (IHS VANDF)
32774 (IHS Med Route)

**Snapshot Date.** Snapshot Date to check. Default Today’s Date.

**Local (Optional).** Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.

**Debug (Optional).** Pass 1 to display debug information.

**Mapping Parameters (Optional).** Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239

**Parameter:** VAR

**Data Type:** String List

**Description:** The VAR(#) list of records returns the following sections (based on the IN Parameters Maximum Number Concepts and Return Info):

- **Concept ID/DTSID:**
  - VAR(#,"CON")=Concept ID
  - VAR(#,"DTS")=Internal DTS ID

- **Fully Specified Name:**
  - VAR(#,"FSN","DSC")= Description ID of the FSN
  - VAR(#,"FSN","TRM")=Fully Specified Name
  - VAR(#,"FSN","XADT")=Date Added
  - VAR(#,"FSN","XRDT")=Date Retired

- **ICD Information** - Multiple Records Returned (CTR) – ICD-9 or ICD-10 will be returned in this section based on the date in the “Date to Check” input parameter (#5). If date is after the ICD-10 implementation date found in file 80.4, ICD-10 information will get returned. Otherwise ICD-9 information will get returned. Note that the values getting returned may change based on information passed into the call in the Mapping Parameters input piece:
  - VAR(#,"ICD",CTR,"COD")=ICD9/ICD10 Code
  - VAR(#,"ICD",CTR,"TYP")=Code Type(IC9 or 10D)
  - VAR(#,"ICD",CTR,"XADT")=Date Added
  - VAR(#,"ICD",CTR,"XRDT")=Date Retired

- **Legacy ICD-9** – Legacy ICD-9 information will always get returned in this node:
  - VAR(#,"IC9",CTR,"COD")=ICD9 Code
  - VAR(#,"IC9",CTR,"TYP")=Code Type(IC9)
  - VAR(#,"IC9",CTR,"XADT")=Date Added
  - VAR(#,"IC9",CTR,"XRDT")=Date Retired

- **IsA Information** - Multiple Records Returned (CTR):
– VAR(#,"ISA",CTR,"CON")=Concept ID of IsA Term (may be blank prior to lookup)
– VAR(#,"ISA",CTR,"DTS")=DTSId of the IsA Term
– VAR(#,"ISA",CTR,"TRM")=IsA Term Name
– VAR(#,"ISA",CTR,"XADT")=Date Added
– VAR(#,"ISA",CTR,"XRDT")=Date Retired

• **Association Information (SNOMED)** - Multiple Records Returned (CTR):
  – VAR(#,"ASM",CTR,"CON")=SNOMED Concept CT Association
  – VAR(#,"ASM",CTR,"DTS")=DTSId of the SNOMED Concept

• **Association Information (RxNorm)** - Returned (Multiple Records CTR):
  – VAR(#,"ARX",CTR,"CON")=RxNorm Code Value Association
  – VAR(#,"ARX",CTR,"DTS")=DTSId of the RxNorm Concept

• **Association Information (UNII)** - Multiple Records Returned (CTR):
  – VAR(#,"ASN",CTR,"CON")=UNII Code Value Association
  – VAR(#,"ASN",CTR,"DTS")=DTSId of the UNII Concept

• **Inverse Association Information (RxNorm)** - Multiple Records Returned (CTR):
  – VAR(#,"IAR",CTR,"CON")=RxNorm Code Value of Inverse Association
  – VAR(#,"IAR",CTR,"DTS")=DTSId of the RxNorm Concept
  – VAR(#,"IAR",CTR,"TRM")=Inverse Association Term

• **Child Information** - Multiple Records Returned (CTR):
  – VAR(#,"CHD",CTR,"CON")=Concept ID of Child Term (may be blank prior to detail lookup)
  – VAR(#,"CHD",CTR,"DTS")=DTSId of the Child Term
  – VAR(#,"CHD",CTR,"TRM")=IsA Term Name
  – VAR(#,"CHD",CTR,"XADT")=Date Added
  – VAR(#,"CHD",CTR,"XRDT")=Date Retired

• **Lookup Problem Column Value** (Preferred Term Information for concept for Search Type [F] or Synonym or Preferred Term Information for Search Type [S]):
  – VAR(#,"PRB","DSC")=Description ID of a Pref Term (Type F) or Synonym/Pref Term (S)
  – VAR(#,"PRB","TRM")=Preferred Name of a Concept (F) or a Synonym/Preferred Name (S)

• **Preferred Term Information:**
  – VAR(#,"PRE","DSC")=Description ID of Preferred Term
  – VAR(#,"PRE","TRM")=Preferred Term
- VAR(#,"PRE","XADT")=Date Added
- VAR(#,"PRE","XRDT")=Date Retired

**Subset Information** - Multiple Records Returned (CTR):
- VAR(#,"SUB",CTR,"SUB")=Subset Name
- VAR(#,"SUB",CTR,"XADT")=Date Added
- VAR(#,"SUB",CTR,"XRDT")=Date Retired

**Synonym Information** - Multiple Records Returned (CTR):
- VAR(#,"SYN",CTR,"DSC")=Description ID of Synonym
- VAR(#,"SYN",CTR,"TRM")=Synonym Term
- VAR(#,"SYN",CTR,"XADT")=Date Added
- VAR(#,"SYN",CTR,"XRDT")=Date Retired

**Date Concept Added/Retired:**
- VAR(#,"XADT")=Date Added
- VAR(#,"XRDT")=Date Retired

**Prompt for Abnormal Findings** (1 – Yes/0 – No):
- VAR(#,"ABN")=1/0

**Prompt for Laterality** (1 – Yes/0 – No):
- VAR(#,"LAT")=1/0

**Fracture Healing Choices** (RD, RDN, RDNM, Null – No fracture healing):
- VAR(#,"HEAL")=RD/RDN/RDNM/Null

**Is Concept a Designated Common Term** (1 – Yes/0 – No):
- VAR(#,"CMN")=1/0

**Is Concept in the IHS PROBLEM ALL SNOMED subset** (1 – Yes/0 – No):
- VAR(#,"PAS")=1/0

**Equivalent Concept Children:**
- VAR(#,"EQC",CTR,"CON")=Child Concept ID
- VAR(#,"EQC",CTR,"DTS")=Child DTSID
- VAR(#,"EQC",CTR,"XADT")=Child Date Added
- VAR(#,"EQC",CTR,"XRDT")=Child Date Retired

**Equivalent Concept Match:**
- VAR(#,"EQM","LAT")=Laterality
- VAR(#,"EQM","DTS")=DTSID
- VAR(#,"EQM","CON")=Concept ID
- VAR(#,"EQM","XADT")=Date Added
- \text{VAR}(#)\"EQM\"\"XRDT\"=Date Retired

- **Interface Term:**
  - \text{VAR}(#)\"CTM\"\"TRM\"=Interface Term
  - \text{VAR}(#)\"CTM\"\"DSC\"=Interface Term Description ID

**Result returned as:**

\text{Status}^\text{PrimaryErrorMsg}^\text{SecondaryErrorMsg}

**Values:**

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned

- **Primary Remote Error Message**
- **Secondary Remote Error Message** (if applicable)

**Parameter:** <return value>

**Data Type:** String

**Description:** Result returned as:

\text{Status}^\text{PrimaryErrorMsg}^\text{SecondaryErrorMsg}

**Values:**

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned

- **Primary Remote Error Message.**
- **Secondary Remote Error Message** (if applicable).

### 5.2.9 $$\text{VALS}BTRM^\text{BSTSAPI}

This API will return whether a given term is a valid within the supplied subset.

**Parameter:** OUT

**Data Type:** String

**Description:** Output variable/global to return information specified in the VAR parameter that follows.
Parameter: **IN**

**Data Type:** String (Optional)

**Description:** Specified as:


**Values:**

- **Description ID.** The Description ID for lookup.
- **Subset.** Subset to look for.
- **Codeset ID.** Default to SNOMED CT US Extension (‘36’).
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information.

Parameter: **VAR**

**Data Type:** String List

**Description:** Single VAR record is returned.

**Values:**

- 1. Term is in the provided subset
- 0. Term is not in the provided subset

Parameter: **<return value>**

**Data Type:** String

**Description:** Result returned as:

Status^PrimaryErrorMsg^SecondaryErrorMsg

**Values:**

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- **Primary Remote Error Message.**
- **Secondary Remote Error Message** (if applicable).
5.2.10 **CNCLKP^BSTSAPI**

This API will return the detail information for the specified Concept ID.

**Parameter:** OUT

- **Data Type:** String
- **Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN

- **Data Type:** String (Optional)
- **Description:** Specified as:

**Values:**
- **Concept ID.** The Concept ID to look up
- **Codeset ID** (Optional). Default to SNOMED CT US Extensions (36) – Available namespaces are 36 (SNOMED CT US Extension, 5180 (FDA UNII), 1552 (RxNorm R)
- **Snapshot Date.** Snapshot Date to check. Default Today’s Date.
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 to perform a remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information
- **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239

**Parameter:** VAR

- **Data Type:** String List
- **Description:** The VAR(#) list of records returns the following sections:
  - **Concept ID/DTSID:**
    - VAR(#,"CON")=Concept ID
    - VAR(#,"DTS")=Internal DTS ID
  - **Fully Specified Name:**
    - VAR(#,"FSN","DSC")= Description ID of the FSN
    - VAR(#,"FSN","TRM")=Fully Specified Name
    - VAR(#,"FSN","XADT")=Date Added
    - VAR(#,"FSN","XRDT")=Date Retired
- **ICD Information** - Multiple Records Returned (CTR) – ICD-9 or ICD-10 will be returned in this section based on the date in the “Date to Check” input parameter (#5). If date is after the ICD-10 implementation date found in file 80.4, ICD-10 information will get returned. Otherwise ICD-9 information will get returned. Note that the values getting returned may change based on information passed into the call in the Mapping Parameters input piece:
  - VAR(#,"ICD",CTR,"COD")=ICD9/ICD10 Code
  - VAR(#,"ICD",CTR,"TYP")=Code Type(IC9 or 10D)
  - VAR(#,"ICD",CTR,"XADT")=Date Added
  - VAR(#,"ICD",CTR,"XRDT")=Date Retired
- **Legacy ICD-9** – Legacy ICD-9 information will always get returned in this node:
  - VAR(#,"IC9",CTR,"COD")=ICD9 Code
  - VAR(#,"IC9",CTR,"TYP")=Code Type(IC9)
  - VAR(#,"IC9",CTR,"XADT")=Date Added
  - VAR(#,"IC9",CTR,"XRDT")=Date Retired
- **IsA Information** - Multiple Records Returned (CTR):
  - VAR(#,"ISA",CTR,"CON")=Concept ID of IsA Term (may be blank prior to lookup)
  - VAR(#,"ISA",CTR,"DTS")=DTSId of the IsA Term
  - VAR(#,"ISA",CTR,"TRM")=IsA Term Name
  - VAR(#,"ISA",CTR,"XADT")=Date Added
  - VAR(#,"ISA",CTR,"XRDT")=Date Retired
- **Association Information (SNOMED)** - Multiple Records Returned (CTR):
  - VAR(#,"ASM",CTR,"CON")=SNOMED Concept CT Association
  - VAR(#,"ASM",CTR,"DTS")=DTSId of the SNOMED Concept
- **Association Information (RxNorm)** - Multiple Records Returned (CTR):
  - VAR(#,"ARX",CTR,"CON")=RxNorm Code Value Association
  - VAR(#,"ARX",CTR,"DTS")=DTSId of the RxNorm Concept
- **Association Information (UNII)** - Multiple Records Returned (CTR):
  - VAR(#,"ASN",CTR,"CON")=UNII Code Value Association
  - VAR(#,"ASN",CTR,"DTS")=DTSId of the UNII Concept
- **Inverse Association Information (RxNorm)** - Multiple Records Returned (CTR):
  - VAR(#,"IAR",CTR,"CON")=RxNorm Code Value of Inverse Association
  - VAR(#,"IAR",CTR,"DTS")=DTSId of the RxNorm Concept
  - VAR(#,"IAR",CTR,"TRM")=Inverse Association Term
• Child Information - Multiple Records Returned (CTR):
  – VAR(#,"CHD",CTR,"CON")=Concept ID of Child Term (may be blank prior to detail lookup)
  – VAR(#,"CHD",CTR,"DTS")=DTSId of the Child Term
  – VAR(#,"CHD",CTR,"TRM")=IsA Term Name
  – VAR(#,"CHD",CTR,"XADT")=Date Added
  – VAR(#,"CHD",CTR,"XRDT")=Date Retired

• Lookup Problem Column Value:
  – VAR(#,"PRB","DSC")=Description ID of a Pref Term (Type F) or Synonym/Pref Term (S)
  – VAR(#,"PRB","TRM")=Preferred Name of a Concept (F) or a Synonym/Pref Name (S)

• Preferred Term Information:
  – VAR(#,"PRE","DSC")=Description ID of Preferred Term
  – VAR(#,"PRE","TRM")=Preferred Term
  – VAR(#,"PRE","XADT")=Date Added
  – VAR(#,"PRE","XRDT")=Date Retired

• Subset Information - Multiple Records Returned (CTR):
  – VAR(#,"SUB",CTR,"SUB")=Subset Name
  – VAR(#,"SUB",CTR,"XADT")=Date Added
  – VAR(#,"SUB",CTR,"XRDT")=Date Retired

• Synonym Information - Multiple Records Returned (CTR):
  – VAR(#,"SYN",CTR,"DSC")=Description ID of Synonym
  – VAR(#,"SYN",CTR,"TRM")=Synonym Term
  – VAR(#,"SYN",CTR,"XADT")=Date Added
  – VAR(#,"SYN",CTR,"XRDT")=Date Retired

• Date Concept Added/Retired:
  – VAR(#,"XADT")=Date Added
  – VAR(#,"XRDT")=Date Retired

• Prompt for Abnormal Findings (1 – Yes/0 – No):
  – VAR(#,"ABN")=1/0

• Prompt for Laterality (1 – Yes/0 – No):
  – VAR(#,"LAT")=1/0

• Fracture Healing Choices (RD, RDN, RDNM, Null – No fracture healing):
  – VAR(#,"HEAL")=RD/RDN/RDNM/Null
• **Is Concept a Designated Common Term** (1 – Yes/0 – No):
  – VAR(#,"CMN")=1/0

• **Is Concept in the IHS PROBLEM ALL SNOMED subset** (1 – Yes/0 – No):
  – VAR(#,"PAS")=1/0

• **Equivalent Concept Children**:
  – VAR(#,"EQC",CTR,"CON")=Child Concept ID
  – VAR(#,"EQC",CTR,"DTS")=Child DTSID
  – VAR(#,"EQC",CTR,"XADT")=Child Date Added
  – VAR(#,"EQC",CTR,"XRDT")=Child Date Retired

• **Equivalent Concept Match**:
  – VAR(#,"EQM","LAT")=Laterality
  – VAR(#,"EQM","DTS")=DTSID
  – VAR(#,"EQM","CON")=Concept ID
  – VAR(#,"EQM","XADT")=Date Added
  – VAR(#,"EQM","XRDT")=Date Retired

• **Interface Term**:
  – VAR(#,"CTM","TRM")=Interface Term
  – VAR(#,"CTM","DSC")=Interface Term Description ID

**Parameter:** <return value>

**Data Type:** String

**Description:** Result returned as:

Status^PrimaryErrorMsg^SecondaryErrorMsg

**Values:**

• **Status**:
  – 2. Remote information returned
  – 1. Local information returned
  – 0. No Information Returned

• **Primary Remote Error Message**.

• **Secondary Remote Error Message** (if applicable).
5.2.11 \$\$DTSLKP^BSTSAPI

This API will return the detail information for the specified DTS ID.

Parameter: OUT

Data Type: String

Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

Data Type: String

Description: Specified as:


Values:

- **DTS ID.** The DTS ID to look up.
- **Codeset ID** (Optional). Default to SNOMED CT US Extensions (‘36’) - Available namespaces are:
  - 36 (SNOMED CT US Extension)
  - 5180 (FDA UNII)
  - 1552 (RxNorm R)
  - 32773 (GMRA Allergies with Maps)
  - 32772 (GMRA Signs Symptoms)
  - 32771 (IHS VANDF)
  - 32774 (IHS Med Route)
- **Snapshot Date**. Snapshot Date to check. Default Today’s Date.
- **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.
- **Debug** (Optional). Pass 1 to display debug information.
- **TBYPASS** (System Use Only) - Pass 1 to bypass server timeout checks, otherwise leave blank. Do not use for regular calls.
- **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239
**Parameter: VAR**

**Data Type:** String List

**Description:** The VAR(#) list of records returns the following sections:

- **Concept ID/DTSID:**
  - VAR(#,"CON")=Concept ID
  - VAR(#,"DTS")=Internal DTS ID

- **Fully Specified Name:**
  - VAR(#,"FSN", "DSC")= Description ID of the FSN
  - VAR(#,"FSN","TRM")=Fully Specified Name
  - VAR(#,"FSN","XADT")=Date Added
  - VAR(#,"FSN","XRDT")=Date Retired

- **ICD Information** - Multiple Records Returned (CTR) – ICD-9 or ICD-10 will be returned in this section based on the date in the “Date to Check” input parameter (#5). If date is after the ICD-10 implementation date found in file 80.4, ICD-10 information will get returned. Otherwise ICD-9 information will get returned. Note that the values getting returned may change based on information passed into the call in the Mapping Parameters input piece:
  - VAR(#,"ICD",CTR,"COD")=ICD9/ICD10 Code
  - VAR(#,"ICD",CTR,"TYP")=Code Type(IC9 or IC10)
  - VAR(#,"ICD",CTR,"XADT")=Date Added
  - VAR(#,"ICD",CTR,"XRDT")=Date Retired

- **Legacy ICD-9 information will always get returned in this node:**
  - VAR(#,"IC9",CTR,"COD")=ICD9 Code
  - VAR(#,"IC9",CTR,"TYP")=Code Type(IC9)
  - VAR(#,"IC9",CTR,"XADT")=Date Added
  - VAR(#,"IC9",CTR,"XRDT")=Date Retired

- **IsA Information** - Multiple Records Returned (CTR):
  - VAR(#,"ISA",CTR,"CON")=Concept ID of IsA Term (may be blank prior to lookup)
  - VAR(#,"ISA",CTR,"DTS")=DTSId of the IsA Term
  - VAR(#,"ISA",CTR,"TRM")=IsA Term Name
  - VAR(#,"ISA",CTR,"XADT")=Date Added
  - VAR(#,"ISA",CTR,"XRDT")=Date Retired

- **Association Information (SNOMED)** - Multiple Records Returned (CTR):
  - VAR(#,"ASM",CTR,"CON")=SNOMED Concept CT Association
  - VAR(#,"ASM",CTR,"DTS")=DTSId of the SNOMED Concept

- **Association Information (RxNorm)** - Multiple Records Returned (CTR):
- \( \text{VAR}(\#,\text{"ARX"},\text{CTR},\text{"CON"}) = \text{RxNorm Code Value Association} \)
- \( \text{VAR}(\#,\text{"ARX"},\text{CTR},\text{"DTS"}) = \text{DTSId of the RxNorm Concept} \)

**Association Information (UNII) - Multiple Records Returned (CTR):**
- \( \text{VAR}(\#,\text{"ASN"},\text{CTR},\text{"CON"}) = \text{UNII Code Value Association} \)
- \( \text{VAR}(\#,\text{"ASN"},\text{CTR},\text{"DTS"}) = \text{DTSId of the UNII Concept} \)

**Inverse Association Information (RxNorm) - Multiple Records Returned (CTR):**
- \( \text{VAR}(\#,\text{"IAR"},\text{CTR},\text{"CON"}) = \text{RxNorm Code Value of Inverse Association} \)
- \( \text{VAR}(\#,\text{"IAR"},\text{CTR},\text{"DTS"}) = \text{DTSId of the RxNorm Concept} \)
- \( \text{VAR}(\#,\text{"IAR"},\text{CTR},\text{"TRM"}) = \text{Inverse Association Term} \)

**Child Information - Multiple Records Returned (CTR):**
- \( \text{VAR}(\#,\text{"CHD"},\text{CTR},\text{"CON"}) = \text{Concept ID of Child Term (may be blank prior to detail lookup)} \)
- \( \text{VAR}(\#,\text{"CHD"},\text{CTR},\text{"DTS"}) = \text{DTSId of the Child Term} \)
- \( \text{VAR}(\#,\text{"CHD"},\text{CTR},\text{"TRM"}) = \text{IsA Term Name} \)
- \( \text{VAR}(\#,\text{"CHD"},\text{CTR},\text{"XADT"}) = \text{Date Added} \)
- \( \text{VAR}(\#,\text{"CHD"},\text{CTR},\text{"XRDT"}) = \text{Date Retired} \)

**Lookup Problem Column Value:**
- \( \text{VAR}(\#,\text{"PRB"},\text{"DSC"}) = \text{Description ID of a Pref Term (Type F) or Synonym/Pref Term (S)} \)
- \( \text{VAR}(\#,\text{"PRB"},\text{"TRM"}) = \text{Preferred Name of a Concept (F) or a Synonym/PREFERRED Name (S)} \)

**Preferred Term Information:**
- \( \text{VAR}(\#,\text{"PRE"},\text{"DSC"}) = \text{Description ID of Preferred Term} \)
- \( \text{VAR}(\#,\text{"PRE"},\text{"TRM"}) = \text{Preferred Term} \)
- \( \text{VAR}(\#,\text{"PRE"},\text{"XADT"}) = \text{Date Added} \)
- \( \text{VAR}(\#,\text{"PRE"},\text{"XRDT"}) = \text{Date Retired} \)

**Subset Information - Multiple Records Returned (CTR):**
- \( \text{VAR}(\#,\text{"SUB"},\text{CTR},\text{"SUB"}) = \text{Subset Name} \)
- \( \text{VAR}(\#,\text{"SUB"},\text{CTR},\text{"XADT"}) = \text{Date Added} \)
- \( \text{VAR}(\#,\text{"SUB"},\text{CTR},\text{"XRDT"}) = \text{Date Retired} \)

**Synonym Information - Multiple Records Returned (CTR):**
- \( \text{VAR}(\#,\text{"SYN"},\text{CTR},\text{"DSC"}) = \text{Description ID of Synonym} \)
- \( \text{VAR}(\#,\text{"SYN"},\text{CTR},\text{"TRM"}) = \text{Synonym Term} \)
- \( \text{VAR}(\#,\text{"SYN"},\text{CTR},\text{"XADT"}) = \text{Date Added} \)
- \( \text{VAR}(\#,\text{"SYN"},\text{CTR},\text{"XRDT"}) = \text{Date Retired} \)
• **Date Concept Added/Retired:**
  - VAR(#,"XADT")=Date Added
  - VAR(#,"XRDT")=Date Retired

• **Prompt for Abnormal Findings** (1 – Yes/0 – No):
  - VAR(#,"ABN")=1/0

• **Prompt for Laterality** (1 – Yes/0 – No):
  - VAR(#,"LAT")=1/0

• **Fracture Healing Choices** (RD, RDN, RDNM, Null – No fracture healing):
  - VAR(#,"HEAL")=RD/RDN/RDNM/Null

• **Is Concept a Designated Common Term** (1 – Yes/0 – No):
  - VAR(#,"CMN")=1/0

• **Is Concept in the IHS PROBLEM ALL SNOMED subset** (1 – Yes/0 – No):
  - VAR(#,"PAS")=1/0

• **Equivalent Concept Children:**
  - VAR(#,"EQC",CTR,"CON")=Child Concept ID
  - VAR(#,"EQC",CTR,"DTS")=Child DTSID
  - VAR(#,"EQC",CTR,"XADT")=Child Date Added
  - VAR(#,"EQC",CTR,"XRDT")=Child Date Retired

• **Equivalent Concept Match:**
  - VAR(#,"EQM","LAT")=Laterality
  - VAR(#,"EQM","DTS")=DTSID
  - VAR(#,"EQM","CON")=Concept ID
  - VAR(#,"EQM","XADT")=Date Added
  - VAR(#,"EQM","XRDT")=Date Retired

• **Interface Term:**
  - VAR(#,"CTM","TRM")=Interface Term
  - VAR(#,"CTM","DSC")=Interface Term Description ID

**Parameter:** <return value>

**Data Type:** String

**Description:** Result returned as:

```
Status^PrimaryErrorMsg^SecondaryErrorMsg
```

**Values:**

- **Status:**
- 2. Remote information returned
- 1. Local information returned
- 0. No Information Returned

- Primary Remote Error Message.
- Secondary Remote Error Message (if applicable).

5.2.12 \texttt{DSCLKP^{BSTSAPI}}

This API will return the detail information for the specified Description ID.

**Parameter:** OUT

**Data Type:** String

**Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN

**Data Type:** String

**Description:** Specified as:


**Values:**

- **Description ID.** The Description ID to look up.
- **Codeset ID** (Optional). Default to SNOMED CT US Extensions (‘36’) – Available codesets are:
  - 36 (SNOMED CT US Extension)
  - 1552 (RxNorm R)
  - 5180 (FDA UNII)
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information.
- **Snapshot Date.** Snapshot Date to check. Default Today’s Date.
- **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239
Parameter: VAR

Data Type: String List

Description: The VAR(#) list of records returns the following sections (based on the IN Parameters Maximum Number Concepts and Return Info):

- Concept ID/DTSID:
  - VAR(#,"CON")=Concept ID
  - VAR(#,"DTS")=Internal DTS ID

- Fully Specified Name:
  - VAR(#,"FSN","DSC")= Description ID of the FSN
  - VAR(#,"FSN","TRM")=Fully Specified Name
  - VAR(#,"FSN","XADT")=Date Added
  - VAR(#,"FSN","XRDT")=Date Retired

- ICD Information - Multiple Records Returned (CTR) – ICD-9 or ICD-10 will be returned in this section based on the date in the “Date to Check” input parameter (#5). If date is after the ICD-10 implementation date found in file 80.4, ICD-10 information will get returned. Otherwise ICD-9 information will get returned. Note that the values getting returned may change based on information passed into the call in the Mapping Parameters input piece:
  - VAR(#,"ICD",CTR,"COD")=ICD9/ICD10 Code
  - VAR(#,"ICD",CTR,"TYP")=Code Type(IC9 or 10D)
  - VAR(#,"ICD",CTR,"XADT")=Date Added
  - VAR(#,"ICD",CTR,"XRDT")=Date Retired

- Legacy ICD-9 information will always get returned in this node:
  - VAR(#,"IC9",CTR,"COD")=ICD9 Code
  - VAR(#,"IC9",CTR,"TYP")=Code Type(IC9)
  - VAR(#,"IC9",CTR,"XADT")=Date Added
  - VAR(#,"IC9",CTR,"XRDT")=Date Retired

- IsA Information - Multiple Records Returned (CTR):
  - VAR(#,"ISA",CTR,"CON")=Concept ID of IsA Term (may be blank prior to lookup)
  - VAR(#,"ISA",CTR,"DTS")=DTSId of the IsA Term
  - VAR(#,"ISA",CTR,"TRM")=IsA Term Name
  - VAR(#,"ISA",CTR,"XADT")=Date Added
  - VAR(#,"ISA",CTR,"XRDT")=Date Retired

- Association Information (SNOMED) - Multiple Records Returned (CTR):
  - VAR(#,"ASM",CTR,"CON")=SNOMED Concept CT Association
  - VAR(#,"ASM",CTR,"DTS")=DTSId of the SNOMED Concept
• **Association Information (RxNorm)** - Multiple Records Returned (CTR):
  - VAR(#)"ARX",CTR,"CON")=RxNorm Code Value Association
  - VAR(#)"ARX",CTR,"DTS")=DTSId of the RxNorm Concept
  - Association Information (UNII) - Multiple Records Returned (CTR):
  - VAR(#)"ASN",CTR,"CON")=UNII Code Value Association
  - VAR(#)"ASN",CTR,"DTS")=DTSId of the UNII Concept

• **Inverse Association Information (RxNorm)** - Multiple Records Returned (CTR):
  - VAR(#)"IAR",CTR,"CON")=RxNorm Code Value of Inverse Association
  - VAR(#)"IAR",CTR,"DTS")=DTSId of the RxNorm Concept
  - VAR(#)"IAR",CTR,"TRM")=Inverse Association Term

• **Child Information** - Multiple Records Returned (CTR):
  - VAR(#)"CHD",CTR,"CON")=Concept ID of Child Term (may be blank prior to detail lookup)
  - VAR(#)"CHD",CTR,"DTS")=DTSId of the Child Term
  - VAR(#)"CHD",CTR,"TRM")=IsA Term Name
  - VAR(#)"CHD",CTR,"XADT")=Date Added
  - VAR(#)"CHD",CTR,"XRDT")=Date Retired

• **Lookup Problem Column Value** (Preferred Term Information for concept for Search Type [F] or Synonym or Preferred Term Information for Search Type [S]):
  - VAR(#)"PRB","DSC")=Description ID of a Pref Term (Type F) or Synonym/Pref Term (S)
  - VAR(#)"PRB","TRM")=Preferred Name of a Concept (F) or a Synonym/PREFERRED Name (S)

• **Preferred Term Information**:
  - VAR(#)"PRE","DSC")=Description ID of Preferred Term
  - VAR(#)"PRE","TRM")=Preferred Term
  - VAR(#)"PRE","XADT")=Date Added
  - VAR(#)"PRE","XRDT")=Date Retired

• **Subset Information** - Multiple Records Returned (CTR):
  - VAR(#)"SUB",CTR,"SUB")=Subset Name
  - VAR(#)"SUB",CTR,"XADT")=Date Added
  - VAR(#)"SUB",CTR,"XRDT")=Date Retired

• **Synonym Information** - Multiple Records Returned (CTR):
  - VAR(#)"SYN",CTR,"DSC")=Description ID of Synonym
  - VAR(#)"SYN",CTR,"TRM")=Synonym Term
• Date Concept Added/Retired:
  – VAR(#,"SYN",CTR,"XADT")=Date Added
  – VAR(#,"SYN",CTR,"XRDT")=Date Retired

• Prompt for Abnormal Findings (1 – Yes/0 – No):
  – VAR(#,"ABN")=1/0

• Prompt for Laterality (1 – Yes/0 – No):
  – VAR(#,"LAT")=1/0

• Fracture Healing Choices (RD, RDN, RDNM, Null – No fracture healing):
  – VAR(#,"HEAL")=RD/RDN/RDNM/Null

• Is Concept a Designated Common Term (1 – Yes/0 – No):
  – VAR(#,"CMN")=1/0

• Is Concept in the IHS PROBLEM ALL SNOMED subset (1 – Yes/0 – No):
  – VAR(#,"PAS")=1/0

• Equivalent Concept Children:
  – VAR(#,"EQC",CTR,"CON")=Child Concept ID
  – VAR(#,"EQC",CTR,"DTS")=Child DTSID
  – VAR(#,"EQC",CTR,"XADT")=Child Date Added
  – VAR(#,"EQC",CTR,"XRDT")=Child Date Retired

• Equivalent Concept Match:
  – VAR(#,"EQM","LAT")=Laterality
  – VAR(#,"EQM","DTS")=DTSID
  – VAR(#,"EQM","CON")=Concept ID
  – VAR(#,"EQM","XADT")=Date Added
  – VAR(#,"EQM","XRDT")=Date Retired

• Interface Term:
  – VAR(#,"CTM","TRM")=Interface Term
  – VAR(#,"CTM","DSC")=Interface Term Description ID

Parameter: <return value>

Data Type: String

Description: Result returned as:

Status^PrimaryErrorMsg^SecondaryErrorMsg
Values:

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned

- **Primary Remote Error Message.**
- **Secondary Remote Error Message** (if applicable).

### 5.2.13 $$CONC^BSTSAPI$

This API will return the detail information for the specified Concept ID.

**Parameter:** OUT

**Data Type:** String

**Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN

**Data Type:** String

**Description:** Specified as:


**Values:**

- **Concept ID.** The Concept ID to look up.
- **Codeset ID** (Optional). Default to ‘36’ (SNOMED CT US Extensions) – Available codesets are:
  - 36 (SNOMED CT US Extensions)
  - 1552 (RxNorm R)
  - 5180 (FDA UNII)
- **Snapshot Date.** Snapshot Date to check. Default Today’s Date.
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information.
- **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex. EPI=288527008;VST=2087394;AF=With;PRB=50239
Parameter: <return value>

Data Type: String

Description: Result returned as:

of Healing Choices to Display [11]

Values:

- Description ID of Fully Specified Name
- Fully Specified Name
- Description ID of Preferred Term
- Preferred Term
- Mapped ICD Values (based on P3 Snapshot Date) (‘;’ delimiter)
- Mapped ICD9 Values (‘;’ delimiter)
- Prompt for Abnormal/Normal Findings (1-Yes, 0-No)
- Prompt for Laterality (1-Yes, 0-No)
- Default status (Chronic, Personal History, Sub-acute, Admin, Social)
- Prompt for Healing (RDNM, RDN, RD)
- List of healing choices to display (ex. 717128007|NL
Union;28087009|Delayed)

5.2.14 $$DESC^BSTSAPI

This API takes specific information returned by the $$DSCLKP^BSTSAPI API and
returns it as part of a function call.

Parameter: IN

Data Type: String

Description: Specified as:


Values:

- Description ID. The Description ID to look up.
- Codeset ID (Optional). Default to ‘36’ (SNOMED CT US Extensions) -
  Available namespaces are:
  - 36 (SNOMED CT US Extension)
- 5180 (FDA UNII)
- 1552 (RxNorm R).

- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.

- **Debug** (Optional). Pass 1 to display debug information.

- **Snapshot Date**. Snapshot Date to check. Default Today’s Date.

- **Mapping Parameters** (Optional). Pass in delimited mapping parameter information to control the ICD-10 map values that get returned. Ex.

  EPI=288527008;VST=2087394;AF=With;PRB=50239

**Parameter**: <return value>

**Data Type**: String

**Description**: Result returned as:


**Values**:

- **Concept ID**. The Concept ID associated with the specified Description ID.

- **Term Description**. The Term associated with the specified Description ID.

- **Mapped ICD Values (based on P3 Snapshot Date)** (‘;’ delimiter)

- **ICD-9 list**. Delimited list of mapped ICD-9 codes (‘;’ delimiter).

- **Prompt for Abnormal/Normal Findings** (1-Yes,0-No)

- **Prompt for Laterality** (1-Yes,0-No)

- **Default status** (Chronic, Personal History, Sub-acute, Admin, Social)

- **Prompt for Healing** (RDNM, RDN, RD)

- **List of healing choices to display** (ex. 717128007|NL Union;28087009|Delayed)
5.2.15 $$VSBTRMF^BSTSAPI

This API takes specific information returned by the $$VALSBTRM^BSTSAPI API and returns it as part of a function call.

Parameter: IN

Data Type: String (Optional)

Description: Specified as:


Values:

- **Description ID.** The Description ID for lookup.
- **Subset.** Subset to look for.
- **Codeset ID.** Default to ‘36’ (SNOMED CT US Extensions).
- **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.
- **Debug** (Optional). Pass 1 to display debug information.

Parameter: <return value>

Data Type: String

Description: Single VAR record is returned.

Value:

- 1. Term is in the provided subset
- 0. Term is not in the provided subset

5.2.16 $$DILKP^BSTSAPI

This API takes accepts a National Drug Code (NDC) or VA Unique IDentifier (VUID) code and returns the any RxNorm values mapped to that code.

Parameter: OUT

Data Type: String

Description: Output variable/global to return information specified in the VAR parameter that follows.

Parameter: IN

Data Type: String

Description: Specified as:

Values:

- **Code**. The NDC or VUID code to lookup.
- **Type**. Pass:
  - N for NDC lookup
  - V for VUID lookup
- **Local** (Optional). Pass 1 to perform local listing, otherwise leave blank for remote listing.
- **Debug** (Optional). Pass 1 to display debug information.
- **TBYPASS** (System Use Only) - Pass 1 to bypass server timeout checks, otherwise leave blank. Do not use for regular calls.

**Parameter:** VAR

**Data Type:** String List

**Description:** The VAR(#) list of records returns the following information:

- **RxNorm Mappings:**
  - VAR(#,"RXN","CON")=RxNorm Code
  - VAR(1,"RXN","TRM")=RxNorm Code
  - VAR(1,"RXN","TDC")=Tradename Code
  - VAR(1,"RXN","TDT")= Tradename Term

**Parameter:** <return value>

**Data Type:** String

**Description:** Result returned as:

`Status^PrimaryErrorMsg^SecondaryErrorMsg`

Values:

- **Status**:
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- **Primary Remote Error Message**.
- **Secondary Remote Error Message** (if applicable).
5.2.17 $$ASSOC^BSTSAPI

This API calls the existing $$VALTERM^BSTSAPI API call (accepting the same input parameters) and returns any association entries for only the first VAR(#) entry. Since most mapping files will return only one VAR(#) entry, this API can be used so its results can be parsed (rather than having to pull the data out of the VAR(#) array pieces).

**Parameter:** IN

**Data Type:** String (Optional)

**Description:** Specified as:


**Values:**

- **Search Term.** The exact term for lookup.
- **Codeset ID** (Optional). Default to SNOMED CT US Extension (‘36’) - Available namespaces are:
  - 36 (SNOMED CT US Extension)
  - 5180 (FDA UNII)
  - 1552 (RxNorm R)
  - 32773 (GMRA Allergies with Maps)
  - 32772 (GMRA Signs Symptoms)
  - 32771 (IHS VANDF)
  - 32774 (IHS Med Route)
- **Snapshot Date.** Snapshot Date to check. Default Today’s Date.
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- **Debug** (Optional). Pass 1 to display debug information.

**Parameter:** <return value>

**Data Type:** String

**Description:** Result returned as:

[1]^[2]^[3]

**Values:**

- [1] SNOMED Association(s) (";" delimited)
- [2] RxNorm Association(s) (";" delimited)
- [3] UNII Association(s) (";" delimited)
### Table 5-2: Returned string definition

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;return value&gt;</td>
<td>String</td>
<td>Result returned as:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[1]^[2]^[3]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Values:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[1] SNOMED Association(s) (&quot;;&quot; delimited)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[2] RxNorm Association(s) (&quot;;&quot; delimited)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[3] UNII Association(s) (&quot;;&quot; delimited)</td>
</tr>
</tbody>
</table>

### 5.2.18 $$DI2RX^BSTSAPI$$

This API calls the existing $$DILKP^BSTSAPI$$ API call (accepting the same input parameters) and returns only the first RxNorm value associated with the entry.

**Parameter:** IN  
**Data Type:** String  
**Description:** Specified as:  
**Values:**  
- **Code.** The NDC or VUID code to lookup.  
- **Type.** Pass:  
  - **N** for NDC lookup  
  - **V** for VUID lookup  
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.  
- **Debug** (Optional). Pass 1 to display debug information.

**Parameter:** <return value>  
**Data Type:** String  
**Description:** Result returned as:  
[1]^[2]^[3]^[4]  
**Values:**  
- [1] RxNorm Code  
- [2] RxNorm Term  
- [4] Tradename RxNorm Term
5.2.19 $I10ADV^BSTSAPI

This API will return formatted map advice information for a particular SNOMED® Term.

**Parameter:** OUT

**Data Type:** String

**Description:** Output variable/global to return information specified in the VAR parameter that follows.

**Parameter:** IN

**Data Type:** String (Optional)

**Description:**


**Values:**

- **Concept ID.** The Concept ID to look up.
- **Local** (Optional). Pass 1 or blank to perform local listing. Pass 2 for remote DTS listing.
- **Exclude Info.** Pass 1 to exclude add/retired date info from the output.
- **Debug** (Optional). Pass 1 to display debug information.

**Parameter:** VAR

**Data Type:** String List

**Description:** The VAR(#) list of records returns the mapping information on file for the specified concept. Multiple records per concept could be returned.

**Format:**

VAR(#)=Formatted Mapping Advice

**Parameter:** <return value>

**Data Type:** String

**Description:**

**Values:**

- **Status:**
  - 2. Remote information returned
  - 1. Local information returned
  - 0. No Information Returned
- **Primary Remote Error Message**
- **Secondary Remote Error Message** (if applicable)

5.2.20 EQUIV^BSTSAPI

This API will return any concepts which match (whether via an exact match or a related match) to the concept/laterality input into the API.

**Parameter:** OUT

**Data Type:** Array

**Description:** Output array containing exact or related concept matches. Format: 
OUT(#) = Matching Concept Id [1] ^ Matching Laterality Attribute|Qualifier [2] ^ Exact Match (1/0) [3] ^ Input Entry is Lateralized or is an Equivalent Lateralized Concept (1/0) [4]

**Parameter:** IN

**Data Type:** String (Optional)

**Description:**

The Concept ID [1] ^ Laterality Attribute|Qualifier

5.2.21 RCONC^BSTSAPI

This routine accepts a concept and namespace ID and returns a list of possible replacement concepts if it is retired.

**Input:**

**Parameter:** CONC

**Data Type:** String

**Description:** Concept ID to return replacement information for:

**Parameter:** NMID

**Data Type:** String (Optional)

**Description:** The namespace ID of the concept. The default is 36 (SNOMED)

**Parameter:** BSTSRET

**Data Type:** Array

**Description:** Return variable array
Output:
If concept still active:

If exact match:

If no single exact match but possible match(es) available:
\textbf{BSTSRET}""

If inactive and no matches available:
\textbf{BSTSRET}""

Sample call:
\texttt{>D RCONC^BSTSAPI(495003,36,.RET) ZW RET}
\texttt{RET="715052003^Disease caused by Capripoxvirus^3301304017^R"

5.2.22 RTERM^BSTSAPI
This routine accepts a Description ID and Namespace ID and returns a possible replacement if the term has been retired.

Input:
\textbf{Parameter: DESCID}
\textbf{Data Type:} String

\textbf{Description:} Description ID to return replacement information for

\textbf{Parameter: NMID}
\textbf{Data Type:} String (Optional)

\textbf{Description:} The namespace ID of the concept. The default is 36 (SNOMED)

\textbf{Parameter: BSTSRET}
\textbf{Data Type:} Array
**Description**: Return variable array

Output:

If term and underlying concept are still active:

\[
\text{BSTSRET} = \text{Passed in Description ID [1]} \text{^Term of Passed in Description ID [2]} \text{^Concept ID of Passed in Term [3]}
\]

If term is inactive but underlying concept is still active:

\[
\text{BSTSRET} = \text{Preferred Term Description ID of Underlying Concept [1]} \text{^Preferred Term of Underlying Concept [2]} \text{^Concept ID of Passed in Term [3]}
\]

If both term and underlying concept are inactive it will try to identify an exact replacement concept. If one is found:

1) It will first look for an exact match on the original term. If found:

\[
\text{BSTSRET} = \text{New Description ID of Exact Term [1]} \text{^Exact Term [2]} \text{^Replacement Concept ID [3]}
\]

2) If no exact match on original term is found:

\[
\text{BSTSRET} = \text{Description ID of Preferred Term of Replacement Concept [1]} \text{^Preferred Term of Replacement Concept [2]} \text{^Replacement Concept ID [3]}
\]

If an exact replacement is not found but multiple replacements are:

\[
\text{BSTSRET} = ""
\]

\[
\text{BSTSRET(#)} = \text{Possible Replacement (PR) Description ID [1]} \text{^PR Term [2]} \text{^PR Concept ID [3]} \text{^PR Type, where: PR Type = R - Replaced By, S - Same As, M - May be a [4]}
\]

Sample call:

>`D RTERM^BSTSAPI(1908012,36,.RET) ZW RET`

RET="3301304017^Disease caused by Capripoxvirus^715052003"

---

### 5.2.23 **CVPARM^BSTSMAP1**

EHR, in some situations, uses a synonym of a concept in its display instead of the preferred term. For example, instead of using the preferred term of ‘Right and left’ to represent concept 51440002, it displays ‘Bilateral’. This API will return the term EHR utilizes for the input concept id. *Note that this API does not work for all concepts, just those that are used by EHR and the mapping logic.

**Parameter**: OUT

**Data Type**: String
**Description**: The converted term to display for the input concept

**Parameter**: TYPE

**Data Type**: String (Optional)

**Description**: The category of the input concept. Acceptable inputs are EPI (episocidity), LAT (laterality), AF (abnormal finding), SEV (severity)

**Parameter**: PARM

### 5.3 File List

The following table contains a list of files included with BSTS v2.0:

Table 5-3: File list

<table>
<thead>
<tr>
<th>File #</th>
<th>Filename</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9002318</td>
<td>BSTS SITE PARAMETERS</td>
<td>This file contains a list of categories used in the IPC tab.</td>
</tr>
<tr>
<td>9002318.1</td>
<td>BSTS CODESET</td>
<td>This file contains layout templates uploaded for use by any BSTS user.</td>
</tr>
<tr>
<td>9002318.2</td>
<td>BSTS WEB SERVICE ENDPOINT</td>
<td>This file contains information about the connections to web service endpoints.</td>
</tr>
<tr>
<td>9002318.3</td>
<td>BSTS TERMINOLOGY</td>
<td>This file contains information that was downloaded via the web service interface.</td>
</tr>
<tr>
<td>9002318.4</td>
<td>BSTS CONCEPT</td>
<td>This file contains the concepts that were downloaded via the web service interface.</td>
</tr>
<tr>
<td>9002318.5</td>
<td>BSTS CACHE CLASS TRANSPORT</td>
<td>This file contains the classes that will need to be defined as part of the installation.</td>
</tr>
<tr>
<td>9002318.6</td>
<td>BSTS SNOMED MAPPING CONV</td>
<td>This file contains a list of custom SNOMED concept and term mappings.</td>
</tr>
<tr>
<td>9002318.7</td>
<td>BSTS USER PREFERENCES</td>
<td>This file contains SNOMED lookup utility user preference information.</td>
</tr>
</tbody>
</table>

### 5.4 File Access

The following table contains the FileMan access to new files:

Table 5-4: FileMan access

<table>
<thead>
<tr>
<th>File #</th>
<th>Filename</th>
<th>GL</th>
<th>RD</th>
<th>WR</th>
<th>LYG</th>
<th>DD</th>
<th>DEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>9002318</td>
<td>BSTS SITE PARAMETERS</td>
<td>^BSTS(9002318,</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
<td>@</td>
</tr>
</tbody>
</table>
### 5.5 Cross References

**9002318** (BSTS SITE PARAMETERS)

.01 NAME

B Regular type cross reference

1 WEB SERVICE (multiple)

.01 WEB SERVICE

B Regular type cross reference

.02 PRIORITY

C Regular type cross reference

**9002318.1** (BSTS CODESET)

.01 ID

B Regular type cross reference

.02 CODE

C Regular type cross reference

.03 NAME

D Regular type cross reference
1 VERSION (multiple)

B Regular type cross reference

9002318.2 (BSTS WEB SERVICE ENDPOINT)

.01 NAME

B Regular type cross reference

1 VERSION

.01 VERSION

B Regular type cross reference

5 ERROR LOG

.01 ERROR DATE

B Regular type cross reference

9002318.3 (BSTS TERMINOLOGY)

.01 COUNTER

B Regular type cross reference

1 TERM

E MUMPS New Style Cross References

C Codeset, Concept ID, IEN

D Codeset, Description ID

9002318.4 (BSTS CONCEPT)

.01 COUNTER

B Regular type cross reference

2 MAP ADVICE (multiple)

.01 NUMBER

B Regular type cross reference

1 MAPADVICE (multiple)

.01 MAPADVICE

B Regular type cross reference

2 MAP TARGET NAME (multiple)

.01 MAP TARGET NAME
B Regular type cross reference

3 MAP RULE (multiple)
   .01 MAP RULE
      B Regular type cross reference

4 MAP CATEGORY VALUE (multiple)
   .01 MAP CATEGORY VALUE
      B Regular type cross reference

3 ICD MAPPING (multiple)
   .01 COUNTER
      B Regular type cross reference

   .02 CODE
      C CONCEPT ID, CODE, IEN
      F CODESET, CODE, IEN
      4 SUBSETS (multiple)
         .01 SUBSETS
            B Regular type cross reference

E Regular type cross reference for entire file
New Style Cross References
C CODESET, CONCEPT ID, IEN
D CODESET, DTS ID, IEN

5 IS A RELATIONSHIP (multiple)
   .01 IS A RELATIONSHIP
      B Regular type cross reference

6 SUBCONCEPTS (multiple)
   .01 SUBCONCEPTS
      B Regular type cross reference

7 NDC (multiple)
   .01 NDC
      B Regular type cross reference

G Regular type cross reference for entire file
New Style Cross References
CODESET, NDC, IEN, NDC IEN
8 VUID (multiple)

.01 VUID
  B Regular type cross reference
  H Regular type cross reference for entire file

New Style Cross References
CODESET, VUID, IEN, VUID IEN

9 ASSOCIATIONS (multiple)

.01 CODE
  B Regular type cross reference

11 INVERSE ASSOCIATIONS (multiple)

.01 CODE
  B Regular type cross reference

12 TTY (multiple)

.01 TTY
  B Regular type cross reference

13 ICD9 TO SNOMED MAP (multiple)

.01 ICD9 TO SNOMED MAP

B Regular type cross reference

I Regular type cross reference for entire file

New Style Cross Reference
CODESET, ICD TO SNOMED MAP, IEN, ICD TO SNOMED MAP IEN

J Regular type cross reference for entire file

New Style Cross References
EXTERNAL CODESET,CONCEPT
ID,VARIABLE,CIEN,CIEN1,CIEN2

14 ICD10 CONDITIONAL MAPPING (multiple)

.01 COUNTER
  B Regular type cross reference
1 CONDITION (multiple)
   .01 VARIABLE
   B Regular type cross reference
      J MUMPS New Style Cross References
         CODESET, CONCEPT ID, VARIABLE, CIEN1, CIEN2
15 EQUIVALENT CONCEPT CHILDREN (multiple)
   .01 LATERALITY
      B Regular type cross reference
17 REPLACEMENT CONCEPTS
   .01 REPLACEMENT CONCEPT ID
      B Regular type cross reference

9002318.5 (BSTS CACHE CLASS TRANSPORT)
   .01 PACKAGE NAME
      B Regular type cross reference
11 CLASS (multiple)
   .01 CLASS
      B Regular type cross reference

9002318.6 (BSTS SNOMED MAPPING CONV)
   .01 PARAMETER
      B Regular type cross reference
      C Regular type cross reference for entire file
      New Style Cross Reference
         PARAMETER, SNOMED CONCEPT ID, CONVERSION VALUE, IEN
D Regular type cross reference for entire file
New Style Cross Reference
PARAMETER, CONVERSION VALUE, SNOMED CONCEPT ID, IEN

9002318.7 (BSTS USER PREFERENCES)

.01 USER

B Regular type cross reference
1 NAMESPACE (multiple)
B Regular type cross reference

5.6 Table File

File: 9002318 BSTS SITE PARAMETERS

Global: ^BSTS(9002318,

Table 5-5: BSTS Site parameters

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>NAME</td>
<td>D0,0</td>
<td>1</td>
<td>P</td>
</tr>
<tr>
<td>.02</td>
<td>REFRESH SUBSETS EVERY # DAYS</td>
<td>&quot;</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>.03</td>
<td>LAST UPDATE CHECKS COMPLETED</td>
<td>&quot;</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>1</td>
<td>WEB SERVICES (9002318.01)</td>
<td>D0,1,D1,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.01</td>
<td>WEB SERVICE</td>
<td>&quot;</td>
<td>1</td>
<td>P</td>
</tr>
<tr>
<td>.02</td>
<td>PRIORITY</td>
<td>&quot;</td>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>.03</td>
<td>DAYS TO KEEP ERR RESPONSES</td>
<td>&quot;</td>
<td>3</td>
<td>N</td>
</tr>
</tbody>
</table>

File: 9002318.1 BSTS CODESET

Global: ^BSTS(9002318.1,

Table 5-6: BSTS Codeset

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>ID</td>
<td>D0,0</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>CODE</td>
<td>&quot;</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>.03</td>
<td>NAME</td>
<td>&quot;</td>
<td>3</td>
<td>F</td>
</tr>
<tr>
<td>.04</td>
<td>CURRENT VERSION</td>
<td>&quot;</td>
<td>4</td>
<td>F</td>
</tr>
<tr>
<td>.05</td>
<td>LAST VERSION CHECK</td>
<td>&quot;</td>
<td>5</td>
<td>D</td>
</tr>
<tr>
<td>.06</td>
<td>LAST SUBSET CHECK</td>
<td>&quot;</td>
<td>6</td>
<td>D</td>
</tr>
</tbody>
</table>
### Table 5-7: BSTS Web Service Endpoint

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>NAME</td>
<td>D0,0</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>URL ROOT</td>
<td>&quot;</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>.03</td>
<td>PORT NUMBER</td>
<td>&quot;</td>
<td>3</td>
<td>F</td>
</tr>
<tr>
<td>.04</td>
<td>TYPE</td>
<td>&quot;</td>
<td>4</td>
<td>S</td>
</tr>
<tr>
<td>.05</td>
<td>TIMEOUT OVERRIDE</td>
<td>&quot;</td>
<td>5</td>
<td>F</td>
</tr>
<tr>
<td>.06</td>
<td>CURRENT VERSION</td>
<td>&quot;</td>
<td>6</td>
<td>F</td>
</tr>
<tr>
<td>.07</td>
<td>USERNAME</td>
<td>&quot;</td>
<td>7</td>
<td>F</td>
</tr>
<tr>
<td>.08</td>
<td>PASSWORD</td>
<td>&quot;</td>
<td>8</td>
<td>F</td>
</tr>
<tr>
<td>.09</td>
<td>INACTIVE</td>
<td>&quot;</td>
<td>9</td>
<td>S</td>
</tr>
<tr>
<td>.1</td>
<td>INACTIVE DATE</td>
<td>&quot;</td>
<td>10</td>
<td>D</td>
</tr>
<tr>
<td>.11</td>
<td>SERVICE PATH</td>
<td>&quot;</td>
<td>11</td>
<td>F</td>
</tr>
<tr>
<td>.12</td>
<td>CONNECTION TIMEOUT OVERRIDE</td>
<td>&quot;</td>
<td>12</td>
<td>N</td>
</tr>
<tr>
<td>.13</td>
<td>CHECK FOR DTS CONNECTION ON</td>
<td>&quot;</td>
<td>13</td>
<td>D</td>
</tr>
<tr>
<td>.14</td>
<td>CHECK FOR CONNECTION AFTER</td>
<td>&quot;</td>
<td>14</td>
<td>N</td>
</tr>
<tr>
<td>.15</td>
<td>MAXIMUM REMOTE SEARCH TIME</td>
<td>&quot;</td>
<td>15</td>
<td>N</td>
</tr>
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**IHS Standard Terminology Application Programming Interface (BSTS) Version 2.0 Patch 3**

**Technical Manual Routine**

**July 2020**

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**File: 9002318.3 BSTS TERMINOLOGY**

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<td>EQUIV CONCEPT DTSID</td>
<td></td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>16.03</td>
<td>EQUIV CONCEPT CONC ID</td>
<td></td>
<td>3</td>
<td>F</td>
</tr>
<tr>
<td>16.04</td>
<td>EQUIV CONCEPT REV IN</td>
<td></td>
<td>4</td>
<td>D</td>
</tr>
<tr>
<td>Field #</td>
<td>Field Name</td>
<td>Subscript</td>
<td>Piece</td>
<td>Type</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------</td>
<td>----------------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>17</td>
<td>REPLACEMENT CONCEPTS</td>
<td>D0,17,D1,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.01</td>
<td>REPLACEMENT CONCEPT ID</td>
<td>&quot;</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>DTS ID</td>
<td>&quot;</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>.03</td>
<td>REPLACEMENT TYPE</td>
<td>&quot;</td>
<td>3</td>
<td>S</td>
</tr>
<tr>
<td>.04</td>
<td>CODESET</td>
<td>&quot;</td>
<td>4</td>
<td>P</td>
</tr>
<tr>
<td>.05</td>
<td>REVISION IN</td>
<td>&quot;</td>
<td>5</td>
<td>D</td>
</tr>
<tr>
<td>.06</td>
<td>REVISION OUT</td>
<td>&quot;</td>
<td>6</td>
<td>D</td>
</tr>
</tbody>
</table>

File: 9002318.5 BSTS CACHE CLASS TRANSPORT

Global: ^BSTSCLS(

Table 5-10: BSTS Cache Class Transport

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>PACKAGE NAME</td>
<td>D0,0</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>.02</td>
<td>*INSTALL WHERE</td>
<td>&quot;</td>
<td>2</td>
<td>S</td>
</tr>
<tr>
<td>.04</td>
<td>*PATH</td>
<td>&quot;</td>
<td>4</td>
<td>F</td>
</tr>
<tr>
<td>1.01</td>
<td>*RPMS FILENAME</td>
<td>D0,1</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>1.02</td>
<td>RPMS STATUS</td>
<td>&quot;</td>
<td>2</td>
<td>S</td>
</tr>
<tr>
<td>1.03</td>
<td>RPMS DATE/TIME INSTALLED</td>
<td>&quot;</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>2.01</td>
<td>*ENSEMBLE FILENAME</td>
<td>D0,2</td>
<td>1</td>
<td>F</td>
</tr>
<tr>
<td>2.02</td>
<td>*ENSEMBLE STATUS</td>
<td>&quot;</td>
<td>2</td>
<td>S</td>
</tr>
<tr>
<td>2.03</td>
<td>*ENSEMBLE DATE/TIME INSTALLED</td>
<td>&quot;</td>
<td>3</td>
<td>D</td>
</tr>
<tr>
<td>10</td>
<td>XML (9002318.51)</td>
<td>D0,10,D1,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.01</td>
<td>XML</td>
<td>&quot;</td>
<td>1</td>
<td>W</td>
</tr>
<tr>
<td>11</td>
<td>CLASS (9002318.511)</td>
<td>D0,11,D1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.01</td>
<td>CLASS</td>
<td>&quot;</td>
<td>1</td>
<td>F</td>
</tr>
</tbody>
</table>

File: 9002318.6 BSTS SNOMED MAPPING CONV

Global: ^BSTS(9002318.6,

Table 5-11: BSTS SNOMED Mapping Conv

<table>
<thead>
<tr>
<th>Field #</th>
<th>Field Name</th>
<th>Subscript</th>
<th>Piece</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>.01</td>
<td>PARAMETER</td>
<td>D0,0</td>
<td>1</td>
<td>S</td>
</tr>
<tr>
<td>.02</td>
<td>SNOMED CONCEPT ID</td>
<td>&quot;</td>
<td>2</td>
<td>F</td>
</tr>
<tr>
<td>.03</td>
<td>CONVERSION VALUE</td>
<td>&quot;</td>
<td>3</td>
<td>F</td>
</tr>
</tbody>
</table>
5.7 Callable Routines

There are no remote procedure calls added in this release.

Table 5-13: Callable routines

<table>
<thead>
<tr>
<th>Name</th>
<th>Tag</th>
<th>Routine</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTS GET SUBSET LIST</td>
<td>SUBSET</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS ICD9 TO SNOMED</td>
<td>ICD2SMD</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS GET CODESETS</td>
<td>CDSET</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS GET CONCEPT DETAIL</td>
<td>DETAIL</td>
<td>BSTSRPC1</td>
</tr>
<tr>
<td>BSTS GET SUBSET LIST</td>
<td>SUBSET</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS GET USER PREFS</td>
<td>GET</td>
<td>BSTSUPRF</td>
</tr>
<tr>
<td>BSTS ICD9 TO SNOMED</td>
<td>ICD2SMD</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS LOG SELECTED CONCEPT</td>
<td>SELECT</td>
<td>BSTSRPC1</td>
</tr>
<tr>
<td>BSTS SET USER PREFS</td>
<td>SET</td>
<td>BSTSUPRF</td>
</tr>
<tr>
<td>BSTS SNOMED SEARCH</td>
<td>SEARCH</td>
<td>BSTSRPC</td>
</tr>
<tr>
<td>BSTS SEARCH TYPE AHEAD</td>
<td>TAHEAD</td>
<td>BSTSRPC1</td>
</tr>
<tr>
<td>BSTS SNOMED UNIVERSE SEARCH</td>
<td>USEARCH</td>
<td>BSTSRPC</td>
</tr>
</tbody>
</table>

5.8 Published Entry Points

BSTSAPI.INT

SEARCH(OUT,IN) ;PEP - Perform Codeset Search

CODESETS(OUT,IN) ;PEP - Return list of available code sets
VERSIONS(OUT,IN) ; PEP - Return a list of available versions for a code set
CVRSN(OUT,IN) ; PEP - Return the Current Version For the Code Set
SUBSET(OUT,IN) ; PEP - Return the list of subsets available for a Code Set
VALTERM() ; PEP - Returns whether a given term is valid
DSCLKP(OUT,IN) ; PEP - Returns detail information for a specified Description ID
DTSLKP(OUT,IN) ; PEP - Returns detail information for a specified DTS ID
CNCLKP(OUT,IN) ; PEP - Returns detail information for a specified Concept ID
ASSOC(IN) ; PEP - Returns the associations for each type (SMD, RxNorm, UNII)
DI2RX(IN) ; PEP - Performs a drug ingredient lookup on a specified value
MPADVICE(OUT,IN) ; PEP – Returns ICD-10 mapping advice for a specified Concept ID
SUBLST(OUT,IN) ; PEP – Returns a list of concepts in a specified subset
VALSBTRM(OUT,IN) ; PEP - Returns whether a given term is in a particular subset
VSBRMF(IN) ; PEP – Function form of the VALSBTRM call
ICD2SMD(OUT,IN) ; PEP - Returns the SNOMED terms which map to a given ICD9 code
DILKP(OUT,IN) ; PEP - Performs a drug ingredient lookup on a specified value
DESC(IN) – Function form of the DSCLKP call
CONC(IN) – Function form of the CNCLKP call
I10ADV(OUT,IN) ; PEP - Returns Formatted ICD-10 mapping information for a specified Concept Id
EQUIV(OUT,IN) ; PEP – Returns equivalent laterality concepts for a given concept/laterality pair
RCONC(CONC,NMID,BSTSRET) ; PEP - Return replacement concept(s) for a concept
RTERM(DESCID,NMID,BSTSRET) PEP - Return replacement term and concept for a term
BSTSMAP1.INT

CVPARM(TYPE,PARM) ; Returns the converted term for a conditional parameter
SNOMED Concept Id
6.0 Internal Relations

All functions within this application work independently.

There are no documented internal relations in BSTS.
7.0  **External Relations**

7.1  External Calls

7.2  Callable Routines—Published Entry Points

This application contains no calls to external published entry points other than to standard Kernel/FileMan calls.

7.3  Exported Options

Table 7-1: Exported Options

<table>
<thead>
<tr>
<th>Option Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSTSMENU</td>
<td>Menu option</td>
</tr>
<tr>
<td>BSTS EDIT SITE PARAMETERS</td>
<td>Edit a site’s parameters which include the web service endpoints.</td>
</tr>
<tr>
<td>BSTS WEB SERVICE</td>
<td>Add the path and other information needed to connect to a Terminology Web Service.</td>
</tr>
<tr>
<td>BSTS TEST WEB SERVICE</td>
<td>Performs a test call to a web service.</td>
</tr>
<tr>
<td>BSTS REFRESH LOCAL CACHE</td>
<td>Refreshes a custom codeset or the SNOMED subsets.</td>
</tr>
<tr>
<td>BSTS CHECK WEB SERVICE</td>
<td>Checks the status of the DTS server.</td>
</tr>
<tr>
<td>BSTS DESC ID UTILITY</td>
<td>Runs utility to fix invalid Description IDs</td>
</tr>
<tr>
<td>BSTS REFRESH SUBSETS</td>
<td>Performs a subset refresh</td>
</tr>
<tr>
<td>(Replaced by BSTS REFRESH LOCAL CACHE option)</td>
<td></td>
</tr>
<tr>
<td>BSTSRPC</td>
<td>BMXNet Broker option</td>
</tr>
</tbody>
</table>
8.0 Archiving and Purging

DTS connection errors are logged in the BSTS WEB SERVICE ENDPOINT file. BSTS also contained functionality which will automatically purge this error information. Every night a background process will automatically run which will purge logged connection error information which is older than the number of days specified by the BSTS SITE PARAMETERS file DAYS TO KEEP ERR RESPONSES field. See Section 4.1.2 of this document for additional information on this parameter.
9.0 Documentation Resources

This section describes a few methods to generate BSTS technical documentation.

9.1 %INDEX Option

This option analyzes the structure of a routine to determine in part if the routine adheres to RPMS programming standards. The %INDEX output can include the following components:

- Compiled list of errors and warnings
- Routine listing
- Local variables
- Global variables
- Naked globals
- Label references
- External references

Running %INDEX for a specified set of routines allows users to discover any deviations from RPMS programming standards that exist in the selected routines and to see how routines interact with one another (i.e., which routines call or are called by other routines).

To run %INDEX for the IHS STANDARD TERMINOLOGY, type the BSTS namespace at the “Routine(s)?>” prompt.

9.2 List File Attributes Option

This VA FileMan option allows users to generate documentation pertaining to files and file structure. Using the standard format of this option yields the following data dictionary information for a specified file:

- File name and description
- Identifiers
- Cross-references
- Files pointed to by the file specified
- Files that point to the file specified
- Input, print, and sort templates

In addition, the following applicable data is supplied for each field in the file:

- Field name, number, title, and description
Using the Global Map format of this option generates an output that lists the following information:

- All cross-references for the file selected
- Global location of each field in the file
- Input, print, and sort templates
10.0 SAC Requirements and Exemptions

The BSTS Version 2.0 Patch 1 release contains an approved SAC exemption. This exemption switches the user DUZ value of a PCC background process kicked off by BSTS updates from the regular user who unknowingly kicked off the update to a BSTS proxy user. Figure 10-1 shows the approved SAC exemption.

Figure 10-1: SAC Exemption for BSTS version 2.0 patch 1, templates, forms, and protocols
10.1 Print Templates
There are no print templates in BSTS.

10.2 Sort Templates
There are no sort templates in BSTS.

10.3 Input Templates
- BSTS ADD/EDIT WEB SERVICE
- BSTS EDIT SITE PARAMETERS

10.4 List Templates
There are no list templates in BSTS.

10.5 Forms
There are no forms in BSTS.

10.6 Protocols
There are no protocols in BSTS.
11.0 SNOMED CT Search API

11.1 Description of Development Environment

The SNOMED CT Search API was developed using the programming language C# within Microsoft Visual Studio® 2012 integrated development environment. SNOMED CT Search API is written to use the .NET 2.0 Framework. All new classes created for the SNOMED CT Search API exist within the namespace IndianHealthService.SNOMEDCTSearch.

In addition to the standard .NET object classes, the SNOMED CT Search API uses commercially available Windows form controls from Infragistics. All the controls used were part of a package of controls named Infragistics NetAdvantage® for Windows Forms 2010 Volume 3.

The SNOMED CT Search API also uses the BMX version 4.0 software to facilitate data retrieval and updates are handled through the RPCs defined in the BSTSRPC and BMXRPC namespaces.

All of the dynamic link library (dll) files upon which SNOMED CT Search API depend are delivered with the SNOMED CT Search API install package and are stored in the directory specified by the user (default install directory is: C:\GDIT\SNOMED CT Search API).

11.2 SNOMED CT Search API RPMS Server Requirements

The RPMS server portion of the SNOMED CT Search application does not require a specific version of Caché or OS. However, the server needs to be able to support BMX 4.0 fully and is therefore subject to any requirements needed to run that application. Please refer to the BMX version 4.0 Technical Manual for details.
11.3 List of SNOMED CT Search API Dependencies

The following table shows the graphical user interface dependencies associated with the SNOMED CT Search API application:

Table 11-1: SNOMED CT search API dependencies

<table>
<thead>
<tr>
<th>Dependency</th>
<th>Assembly Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS .Net 2.0 Framework</td>
<td>Version 2.0 with any subsequent service packs from Microsoft</td>
<td>The Microsoft .NET 2.0 Framework is required for the SNOMED CT Search allocation. The SNOMED CT Search installation package will check this prerequisite during install and will assist with the download of this update from Microsoft. If online download is not available, installation will not be allowed until .Net 2.0 has been installed by other means.</td>
</tr>
<tr>
<td>BMXNet40.dll</td>
<td>4.0.0.0</td>
<td>This library file contains the general BMXNet 4.0 client-side utilities and functions for connecting to the RPMS server and managing data connections.</td>
</tr>
<tr>
<td>Infragistics</td>
<td>10.3.20103.1000</td>
<td>These dll files are also distributed with the SNOMED CT Search API installation package</td>
</tr>
</tbody>
</table>

11.4 SNOMED CT Search API—Install

The following table shows all of the files that are included in the SNOMED CT Search API zip file. Note that this dll is not delivered as part of the BSTS release but instead is delivered with other applications that utilize the utility.

Table 11-2: SNOMED CT search API installed files

<table>
<thead>
<tr>
<th>Filename</th>
<th>Assembly Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IndianHealthService.SNOMEDCTSearch</td>
<td>1.0.8.2</td>
<td>This main SNOMED CT Search dll provides access to search methods.</td>
</tr>
<tr>
<td>BMXNET40.dll</td>
<td>4.0.0.0</td>
<td>This library file contains the general BMXNet 4.0 client-side utilities and functions for connecting to the RPMS server and managing data connections.</td>
</tr>
</tbody>
</table>
The following table shows all of the files that are part of a set of enhanced user interface (UI) controls from Infragistics called NetAdvantage for Windows Forms Version 2010 Volume 3:

Table 11-3: Enhanced UI files

<table>
<thead>
<tr>
<th>Filename</th>
<th>Assembly Version</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infragistics2.Shared.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>This file contains general functions and types common to all of the Infragistics controls.</td>
</tr>
<tr>
<td>Infragistics2.Win.Misc.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>This is a set of other miscellaneous functions and data types used when working with the other Infragistics classes.</td>
</tr>
<tr>
<td>Infragistics2.Win.UltraWinEditors.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>This dll file contains enhanced user interface input controls such as the calendar date picker and special combo boxes.</td>
</tr>
<tr>
<td>Infragistics2.Win.UltraWinGrid.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>The UltraGrid™ is an enhanced data-bound DataGrid used to display tabular data to the user. This also allows users to sort, filter, arrange columns, and select rows of data at run time.</td>
</tr>
<tr>
<td>Infragistics2.Win.UltraWinToolbars.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>This file contains classes to handle the toolbars, menu and context menus (right-click) within Windows forms.</td>
</tr>
<tr>
<td>Infragistics2.Win.v10.3.dll</td>
<td>10.3.20103.1000</td>
<td>This file contains classes used at a high level to control application-wide styles and appearances and interface with Windows XP themes, etc.</td>
</tr>
</tbody>
</table>

11.5 SNOMED CT Search API—List of Object Classes

The following table shows the new object classes used within the SNOMED CT Search API. All of the specified class names exist within the namespace IndianHealthService.SNOMEDCTSearch.
Table 11-4: SNOMED CT new object classes

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Assembly</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNOMEDCTLookup</td>
<td>IndianHealthService.SNOMEDCTSearch.dll</td>
<td>DSNOMEDCTSearch class provides a view to allow users to search SNOMED CT.</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>IndianHealthService.SNOMEDCTSearch.dll</td>
<td>DSNOMEDCTSearch class provides a view to allow users to search SNOMED CT based on ICD-9 values.</td>
</tr>
<tr>
<td>Laterality</td>
<td>IndianHealthService.SNOMEDCTSearch.dll</td>
<td>Laterality class provides a view to allow SNOMED CT lookup to prompt a user for laterality associated with a SNOMED CT term.</td>
</tr>
</tbody>
</table>

11.6 SNOMED CT Search API—List of Properties by Class

The following table shows the methods by classes used within the SNOMED CT Search API. All of the specified class names exist within the namespace IndianHealthService.SNOMEDCTSearch.

Table 11-5: SNOMED CT properties by class

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSNOMEDCTLookup</td>
<td>ConceptID</td>
<td>SNOMED CT Concept ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>DefaultStatus</td>
<td>Default status for selected SNOMED CT term, if applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>i.e., Chronic, Sub-acute, Episodic, Inactive, Personal History</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>DefaultSubset</td>
<td>List of subsets to use for the subset listbox.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overrides the default values provided by SNOMED CT Search API.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.Collections.ArrayList</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>Description</td>
<td>SNOMED CT Description</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>DescriptionID</td>
<td>SNOMED CT Description ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>DisplayLaterality</td>
<td>Returns 1 if Laterality should be displayed. Pass thru to let calling application know if Laterality should be displayed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>DataType</strong>: System.Int32</td>
</tr>
<tr>
<td>Class Name</td>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>EnableLaterality</td>
<td>Should Laterality be enabled? Pass in true to enable displaying laterality information and prompting user for laterality for laterality enabled SNOMED CT terms. Data Type: System.Boolean</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>ExternalLateralityValues</td>
<td>Returns Laterality values as text descriptions. Left returns as “Laterality</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>FormSize</td>
<td>Overrides default form size (Width: 800, Height: 600) Data Type: System.Drawing.Size</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>FormTitle</td>
<td>Overrides default form title (SNOMED CT Lookup) Data Type: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>ICD</td>
<td>ICD Value associated with returned SNOMED CT Data Type: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>InternalLateralityValues</td>
<td>Returns Laterality values as SNOMED CT Concept ID values. Left returns “272741003</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>Namespace</td>
<td>Overrides default DTS namespace (36 – SNOMED CT) used to perform search. Data Type: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>NumberofRecords</td>
<td>Maximum number of records returned from SNOMED CT Search Data Type: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>RequireEpisodicity</td>
<td>Returns 1 if Episodicity should be required. Pass thru to let calling application if Episodicity should be required. Data Type: System.Int32</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>SearchValue</td>
<td>Value passed initially search on. If blank, no search will be performed until user intervention. Data Type: System.String</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>SelectedSubset</td>
<td>List of subsets to have selected in subset listbox. Appending “.1” will cause the subset to permanent. Users will be unable to deselect it from the subset listbox. “Appending “.0” or leaving the subset as is will continue to allow users to deselect them. Data Type: System.Collections.ArrayList</td>
</tr>
<tr>
<td>Class Name</td>
<td>Property</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>ShowParentChild</td>
<td>Show Parent/Child on Fully specified search results.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.Boolean</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>SNOMEDCTRRemoteSession</td>
<td>BMX RemoteSession used to perform data calls to SNOMED CT Search (Terminology Search) RPMS area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: IndianHealthService.BMXNet.RemoteSession</td>
</tr>
<tr>
<td>DSNOMEDCTLookup</td>
<td>SynonymSearch</td>
<td>Overrides default search setting of &quot;Fully specified name&quot; to &quot;Synonym&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.Boolean</td>
</tr>
<tr>
<td>Laterality</td>
<td>LateralityValue</td>
<td>Passes back the user selected laterality value. Left, Right, Bilateral or Unspecified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.String</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>FormSize</td>
<td>Overrides default form size (Width: 800, Height: 600)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.Drawing.Size</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>SearchValue</td>
<td>Value passed initially search on. If blank, no search will be performed until user intervention.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.String</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>DescriptionID</td>
<td>SNOMED CT Description ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.String</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>Description</td>
<td>SNOMED CT Description</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.String</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>ConceptID</td>
<td>SNOMED CT Concept ID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.String</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>DefaultSubset</td>
<td>List of subsets to use for the subset listbox. Overrides the default values provided by SNOMED CT Search API.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.Collections.ArrayList</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>SelectedSubset</td>
<td>List of subsets to have selected in subset listbox</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: System.Collections.ArrayList</td>
</tr>
<tr>
<td>ICD9ToSNOMEDCTLookup</td>
<td>SNOMEDCTRRemoteSession</td>
<td>BMX RemoteSession used to perform data calls to SNOMED CT Search (Terminology Search) RPMS area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DataType: IndianHealthService.BMXNet.RemoteSession</td>
</tr>
</tbody>
</table>
12.0 Accessibility Checklist

IHS Section 508 36 CFR Part §1194.21 Software Applications and Operating Systems Checklist

The BSTS package is not a software application that includes a user interface and therefore, the Section 508 compliance checklist is not applicable.
Appendix A  Sample API Calls

A.1  $$SEARCH^BSTSAPI

The following example shows the first two and last two records returned of a Fully Specified Name lookup listing:

```plaintext
>S OUT="VAR",IN="CEREBRAL EDEMA^F"

>W $$SEARCH^BSTSAPI(OUT,IN)
2^  

>ZW VAR
VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=230760006
VAR(1,"CHD",1,"DTS")=230760
VAR(1,"CHD",1,"TRM")="Cytotoxic cerebral edema (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=230762003
VAR(1,"CHD",2,"DTS")=230762
VAR(1,"CHD",2,"TRM")="High altitude cerebral edema (disorder)"
VAR(1,"CHD",2,"XADT")=""
VAR(1,"CHD",2,"XRDT")=""
VAR(1,"CHD",3,"CON")=230761005
VAR(1,"CHD",3,"DTS")=230761
VAR(1,"CHD",3,"TRM")="Periventricular cerebrospinal fluid edema (disorder)"
VAR(1,"CHD",3,"XADT")=""
VAR(1,"CHD",3,"XRDT")=""
VAR(1,"CHD",4,"CON")=230763008
VAR(1,"CHD",4,"DTS")=230763
VAR(1,"CHD",4,"TRM")="Traumatic cerebral edema (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=230759001
VAR(1,"CHD",5,"DTS")=230759
VAR(1,"CHD",5,"TRM")="Vasogenic cerebral edema (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CMN")=0
VAR(1,"CON")=2032001
VAR(1,"DTS")=2032
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=749395013
VAR(1,"FSN","TRM")="Cerebral edema (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
```
VAR(1,"ICD",1,"COD")="G93.6"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=118654009
VAR(1,"ISA",1,"DTS")=118654
VAR(1,"ISA",1,"TRM")="Disorder characterized by edema (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"ISA",2,"CON")=118654
VAR(1,"ISA",2,"DTS")=81308
VAR(1,"ISA",2,"TRM")="Disorder of brain (disorder)"
VAR(1,"ISA",2,"XADT")=""
VAR(1,"ISA",2,"XRDT")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=4508017
VAR(1,"PRB","TRM")="Cerebral edema"
VAR(1,"PRE","DSC")=4508017
VAR(1,"PRE","TRM")="Cerebral edema"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Emergency Department"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="SRCH Family Practice"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="SRCH Medicine - Inpatient"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="SRCH Medicine - Urgent Care"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SUB",7,"SUB")="SRCH Neurology"
VAR(1,"SUB",7,"XADT")=""
VAR(1,"SUB",7,"XRDT")=""
VAR(1,"SUB",8,"SUB")="SRCH Problem List - Medical"
VAR(1,"SUB",8,"XADT")=""
VAR(1,"SUB",8,"XRDT")=""
VAR(1,"SUB",9,"SUB")="PICK Neurology Long"
VAR(1,"SUB",9,"XADT")=""
VAR(1,"SUB",9,"XRDT")=""
VAR(1,"SYN",1,"DSC")=480612016
VAR(1,"SYN",1,"TRM")="Cerebral oedema"
VAR(1,"SYN",1,"XADT")=3120301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=4509013
VAR(1,"SYN",2,"TRM")="Intracranial swelling"
VAR(1,"SYN",2,"XADT")=3120301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"XADT")=3120301
VAR(1,"XRDT")=3500101
VAR(2,"ABN")=0
VAR(2,"CMN")=0
VAR(2,"DTS")=386232002
VAR(2,"DTS")=386232
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")=1460411019
VAR(2,"FSN","TRM")="Cerebral edema control (regime/therapy)"
VAR(2,"FSN","XADT")=3120301.07
VAR(2,"FSN","XRDT")=""
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="ZZZ.999"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ISA",1,"CON")=""
VAR(2,"ISA",1,"DTS")=385932
VAR(2,"ISA",1,"TRM")="Edema control (regime/therapy)"
VAR(2,"ISA",1,"XADT")=""
VAR(2,"ISA",2,"CON")=""
VAR(2,"ISA",2,"DTS")=408767
VAR(2,"ISA",2,"TRM")="Procedure with a clinical finding focus (procedure)"
VAR(2,"ISA",2,"XADT")=""
VAR(2,"ISA",2,"XRDT")=""
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB","DSC")=1477066010
VAR(2,"PRB","TRM")="Cerebral edema control"
VAR(2,"PRE","DSC")=1477066010
VAR(2,"PRE","TRM")="Cerebral edema control"
VAR(2,"PRE","XADT")=3120301.07
VAR(2,"PRE","XRDT")=""
VAR(2,"STS")=""
VAR(2,"SYN",1,"DSC")=1490382012
VAR(2,"SYN",1,"TRM")="Cerebral edema management"
VAR(2,"SYN",1,"XADT")=3120301.07
VAR(2,"SYN",1,"XRDT")=""
VAR(2,"SYN",2,"DSC")=1490153016
VAR(2,"SYN",2,"TRM")="Cerebral oedema management"
VAR(2,"SYN",2,"XADT")=3120301.07
VAR(2,"SYN",2,"XRDT")=""
VAR(2,"SYN",3,"DSC")=1476105016
VAR(2,"SYN",3,"TRM")="Cerebral oedema control"
VAR(2,"SYN",3,"XADT")=3120301.07
VAR(2,"SYN",3,"XRDT")=""
VAR(2,"XADT")=3120301
VAR(2,"XRDT")=3500101

...
VAR(10,"CMN")=0
VAR(10,"CON")=262694001
VAR(10,"DTS")=262694
VAR(10,"EPI")=1
VAR(10,"EQM","CON")=""
VAR(10,"EQM","DTS")=""
VAR(10,"EQM","LAT")=""
VAR(10,"EQM","XADT")=""
VAR(10,"EQM","XRDT")=""
VAR(10,"FSN","DSC")=654719010
VAR(10,"FSN","TRM")="Traumatic generalized cerebral edema (disorder)"
VAR(10,"FSN","XADT")=3120301.07
VAR(10,"FSN","XRDT")=""
VAR(10,"HEAL")=""
VAR(10,"ICD",1,"COD")="ZZZ.999"
VAR(10,"ICD",1,"TYP")="10D"
VAR(10,"ISA",1,"CON")=230763008
VAR(10,"ISA",1,"DTS")=230763
VAR(10,"ISA",1,"TRM")="Traumatic cerebral edema (disorder)"
VAR(10,"ISA",1,"XADT")=""
VAR(10,"ISA",1,"XRDT")=""
VAR(10,"LAT")=0
VAR(10,"PAS")=1
VAR(10,"PRB","DSC")=390685014
VAR(10,"PRB","TRM")="Traumatic generalized cerebral edema"
VAR(10,"PRE","DSC")=390685014
VAR(10,"PRE","TRM")="Traumatic generalized cerebral edema"
VAR(10,"PRE","XADT")=3120301.07
VAR(10,"PRE","XRDT")=""
VAR(10,"STS")=""
VAR(10,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(10,"SUB",1,"XADT")=""
VAR(10,"SUB",1,"XRDT")=""
VAR(10,"SYN",1,"DSC")=390684013
VAR(10,"SYN",1,"TRM")="Traumatic generalised cerebral oedema"
VAR(10,"SYN",1,"XADT")=3120301.07
VAR(10,"SYN",1,"XRDT")=""
VAR(10,"XADT")=3120301
VAR(10,"XRDT")=3500101
VAR(11,"ABN")=0
VAR(11,"CMN")=0
VAR(11,"CON")=230759001
VAR(11,"DTS")=230759
VAR(11,"EPI")=0
VAR(11,"EQM","CON")=""
VAR(11,"EQM","DTS")=""
VAR(11,"EQM","LAT")=""
VAR(11,"EQM","XADT")=""
VAR(11,"EQM","XRDT")=""
VAR(11,"FSN","DSC")=618610011
VAR(11,"FSN","TRM")="Vasogenic cerebral edema (disorder)"
VAR(11,"FSN","XADT")=3120301.07
VAR(11,"FSN","XRDT")=""
VAR(11,"HEAL")=""
VAR(11,"ICD",1,"COD")="G93.6"
VAR(11,"ICD",1,"TYP")="10D"
VAR(11,"ICD",1,"XADT")=3161031
Figure A-1: Specified name lookup

The following example shows the first two and last two records returned of a Fully Specified Name lookup listing, with the add/retire date information being omitted:

```
>S OUT="VAR",IN="CEREBRAL EDEMA^F^^^^^^1"

>W $$SEARCH^BSTSAPI(OUT,IN)

VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=230760006
VAR(1,"CHD",1,"DTS")=230760
VAR(1,"CHD",1,"TRM")="Cytotoxic cerebral edema (disorder)"
VAR(1,"CHD",2,"CON")=230762003
VAR(1,"CHD",2,"DTS")=230762
VAR(1,"CHD",2,"TRM")="High altitude cerebral edema (disorder)"
VAR(1,"CHD",3,"CON")=230761005
VAR(1,"CHD",3,"DTS")=230761
VAR(1,"CHD",3,"TRM")="Periventricular cerebrospinal fluid edema (disorder)"
VAR(1,"CHD",4,"CON")=230763008
VAR(1,"CHD",4,"DTS")=230763
VAR(1,"CHD",4,"TRM")="Traumatic cerebral edema (disorder)"
VAR(1,"CHD",5,"CON")=230759001
VAR(1,"CHD",5,"DTS")=230759
VAR(1,"CHD",5,"TRM")="Vasogenic cerebral edema (disorder)"
VAR(1,"CMN")=0
VAR(1,"CON")=2032001
VAR(1,"DTS")=2032
```
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=749395013
VAR(1,"FSN","TRM")="Cerebral edema (disorder)"
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="G93.6"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ISA",1,"CON")=118654009
VAR(1,"ISA",1,"DTS")=118654
VAR(1,"ISA",1,"TRM")="Disorder characterized by edema (disorder)"
VAR(1,"ISA",2,"CON")=81308009
VAR(1,"ISA",2,"DTS")=81308
VAR(1,"ISA",2,"TRM")="Disorder of brain (disorder)"
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=4508017
VAR(1,"PRB","TRM")="Cerebral edema"
VAR(1,"PRE","DSC")=4508017
VAR(1,"PRE","TRM")="Cerebral edema"
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",3,"SUB")="SRCH Emergency Department"
VAR(1,"SUB",4,"SUB")="SRCH Family Practice"
VAR(1,"SUB",5,"SUB")="SRCH Medicine - Inpatient"
VAR(1,"SUB",6,"SUB")="SRCH Medicine - Urgent Care"
VAR(1,"SUB",7,"SUB")="SRCH Neurology"
VAR(1,"SUB",8,"SUB")="SRCH Problem list - Medical"
VAR(1,"SUB",9,"SUB")="PICK Neurology Long"
VAR(1,"SYN",1,"DSC")=480612016
VAR(1,"SYN",1,"TRM")="Cerebral oedema"
VAR(1,"SYN",2,"DSC")=4509013
VAR(1,"SYN",2,"TRM")="Intracranial swelling"
VAR(2,"ABN")=0
VAR(2,"CMN")=0
VAR(2,"CON")=386232002
VAR(2,"DTS")=386232
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")=1460411019
VAR(2,"FSN","TRM")="Cerebral edema control (regime/therapy)"
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="ZZZ.999"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ISA",1,"CON")=""
VAR(2,"ISA",1,"DTS")=385932
VAR(2,"ISA",1,"TRM")="Edema control (regime/therapy)"
VAR(2,"ISA",2,"CON")=""
VAR(2,"ISA",2,"DTS")=408767
VAR(2,"ISA",2,"TRM")="Procedure with a clinical finding focus (procedure)"
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB",1,"DSC")=1477066010
VAR(2,"PRB",2,"TRM")="Cerebral edema control"
VAR(2,"PRE",1,"DSC")=1477066010
VAR(2,"PRE",2,"TRM")="Cerebral edema control"
VAR(2,"STS")=""
VAR(2,"SYN",1,"DSC")=1490382012
VAR(2,"SYN",1,"TRM")="Cerebral edema management"
VAR(2,"SYN",2,"DSC")=1490153016
VAR(2,"SYN",2,"TRM")="Cerebral oedema management"
VAR(2,"SYN",3,"DSC")=1476105016
VAR(2,"SYN",3,"TRM")="Cerebral oedema control"

VAR(10,"ABN")=0
VAR(10,"CMN")=0
VAR(10,"CON")=262694001
VAR(10,"DTS")=262694
VAR(10,"EPI")=1
VAR(10,"EQM",1,"CON")=""
VAR(10,"EQM",1,"DTS")=""
VAR(10,"EQM",1,"LAT")=""
VAR(10,"EQM",1,"XADT")=""
VAR(10,"EQM",1,"XRDT")=""
VAR(10,"FSN",1,"DSC")=654719010
VAR(10,"FSN",1,"TRM")="Traumatic generalized cerebral edema (disorder)"
VAR(10,"HEAL")=""
VAR(10,"ICD",1,"COD")="ZZZ.999"
VAR(10,"ICD",1,"TYP")="10D"
VAR(10,"ISA",1,"CON")=230763008
VAR(10,"ISA",1,"DTS")=230763
VAR(10,"ISA",1,"TRM")="Traumatic cerebral edema (disorder)"
VAR(10,"LAT")=0
VAR(10,"PAS")=1
VAR(10,"PRB",1,"DSC")=390685014
VAR(10,"PRB",2,"TRM")="Traumatic generalized cerebral edema"
VAR(10,"PRE",1,"DSC")=390685014
VAR(10,"PRE",2,"TRM")="Traumatic generalized cerebral edema"
VAR(10,"STS")=""
VAR(10,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(10,"SYN",1,"DSC")=390684013
VAR(10,"SYN",1,"TRM")="Traumatic generalised cerebral oedema"

VAR(11,"ABN")=0
VAR(11,"CMN")=0
VAR(11,"CON")=230759001
VAR(11,"DTS")=230759
VAR(11,"EPI")=0
VAR(11,"EQM",1,"CON")=""
VAR(11,"EQM",1,"DTS")=""
VAR(11,"EQM",1,"LAT")=""
VAR(11,"EQM",1,"XADT")=""
VAR(11,"EQM",1,"XRDT")=""
VAR(11,"FSN",1,"DSC")=618610011
VAR(11,"FSN",1,"TRM")="Vasogenic cerebral edema (disorder)"
Figure A-2: Fully Specified Name lookup – add/retire date omitted, only synonyms

The following example shows the first two and last two records returned of a Synonym lookup listing, with the add/retire date information being omitted:

```plaintext
>S OUT="VAR",IN="CHRONIC OTITIS EXTERNA^S^^^^^^1"

>W %$SEARCH^BSTSAPI(OUT,IN)
  2^  
>ZW VAR
V AR(1,"ABN")=0
V AR(1,"CHD",1,"CON")=111898002
V AR(1,"CHD",1,"DTS")=111898
V AR(1,"CHD",1,"TRM")="Chronic mycotic otitis externa (disorder)"
V AR(1,"CHD",2,"CON")=232236003
V AR(1,"CHD",2,"DTS")=232236
V AR(1,"CHD",2,"TRM")="Chronic non-infective otitis externa (disorder)"
V AR(1,"CHD",3,"CON")=402208007
V AR(1,"CHD",3,"DTS")=402208
V AR(1,"CHD",3,"TRM")="Chronic seborrheic otitis externa (disorder)"
V AR(1,"CHD",4,"CON")=232241006
V AR(1,"CHD",4,"DTS")=232241
V AR(1,"CHD",4,"TRM")="Chronic traumatic otitis externa (disorder)"
V AR(1,"CHD",5,"CON")=194207002
V AR(1,"CHD",5,"DTS")=194207
V AR(1,"CHD",5,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
V AR(1,"CMN")=0
V AR(1,"CON")=53295002
V AR(1,"DTS")=53295
V AR(1,"EPI")=0
V AR(1,"EQM","CON")=""
V AR(1,"EQM","DTS")=""
V AR(1,"EQM","LAT")=""
V AR(1,"EQM","XADT")=""
V AR(1,"EQM","XRDT")=""
V AR(1,"FSN","DSC")=791398013
V AR(1,"FSN","TRM")="Chronic otitis externa (disorder)"
```
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="H60.60"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ISA",1,"CON")=34936007
VAR(1,"ISA",1,"DTS")=34936
VAR(1,"ISA",1,"TRM")="Chronic dermatitis (disorder)"
VAR(1,"ISA",2,"CON")=128297008
VAR(1,"ISA",2,"DTS")=128297
VAR(1,"ISA",2,"TRM")="Chronic disease of ear (disorder)"
VAR(1,"ISA",3,"CON")=3135009
VAR(1,"ISA",3,"DTS")=3135
VAR(1,"ISA",3,"TRM")="Otitis externa (disorder)"
VAR(1,"LAT")=1
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=88624014
VAR(1,"PRB","TRM")="Chronic otitis externa"
VAR(1,"PRE","DSC")=88624014
VAR(1,"PRE","TRM")="Chronic otitis externa"
VAR(1,"STS")="Chronic"
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",3,"SUB")="SRCH Audiology"
VAR(1,"SUB",4,"SUB")="SRCH Dermatology"
VAR(1,"SUB",5,"SUB")="SRCH ENT"
VAR(1,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(1,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(1,"SUB",8,"SUB")="PICK ENT"
VAR(1,"SUB",9,"SUB")="PICK ENT - Ear"
VAR(1,"SYN",1,"DSC")=88625010
VAR(1,"SYN",1,"TRM")="Chronic otitis externa, NOS"
VAR(2,"ABN")=0
VAR(2,"CMN")=0
VAR(2,"CON")=232226006
VAR(2,"DTS")=232226
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"FSN","DSC")=620264015
VAR(2,"FSN","TRM")="Chronic viral otitis externa (disorder)"
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="H60.399"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ICD",2,"COD")="B34.9"
VAR(2,"ICD",2,"TYP")="10D"
VAR(2,"ISA",1,"CON")=232224009
VAR(2,"ISA",1,"DTS")=232224
VAR(2,"ISA",1,"TRM")="Chronic infective otitis externa (disorder)"
VAR(2,"ISA",2,"CON")=312137007
VAR(2,"ISA",2,"DTS")=312137
VAR(2,"ISA",2,"TRM")="Viral ear infection (disorder)"
VAR(2,"ISA",3,"CON")=128937004
VAR(2,"ISA",3,"DTS")=128937
VAR(2,"ISA",3,"TRM")="Viral infection of skin (disorder)"
VAR(2,"LAT")=1
VAR(2,"PAS")=1
VAR(2,"PRB","DSC")=347944017
VAR(2,"PRB","TRM")="Chronic viral otitis externa"
VAR(2,"PRE","DSC")=347944017
VAR(2,"PRE","TRM")="Chronic viral otitis externa"
VAR(2,"STS")="Chronic"
VAR(2,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(2,"SUB",2,"SUB")="IHS Problem List"
VAR(2,"SUB",3,"SUB")="SRCH Audiology"
VAR(2,"SUB",4,"SUB")="SRCH Dermatology"
VAR(2,"SUB",5,"SUB")="SRCH ENT"
VAR(2,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(2,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"

VAR(20,"ABN")=0
VAR(20,"CHD",1,"CON")=111898002
VAR(20,"CHD",1,"DTS")=111898
VAR(20,"CHD",2,"TRM")="Chronic mycotic otitis externa (disorder)"
VAR(20,"CHD",2,"CON")=232236003
VAR(20,"CHD",2,"DTS")=232236
VAR(20,"CHD",3,"TRM")="Chronic non-infective otitis externa (disorder)"
VAR(20,"CHD",3,"CON")=402208007
VAR(20,"CHD",3,"DTS")=402208
VAR(20,"CHD",4,"TRM")="Chronic seborrheic otitis externa (disorder)"
VAR(20,"CHD",4,"CON")=232241006
VAR(20,"CHD",4,"DTS")=232241
VAR(20,"CHD",5,"TRM")="Chronic traumatic otitis externa (disorder)"
VAR(20,"CHD",5,"CON")=194207002
VAR(20,"CHD",5,"DTS")=194207
VAR(20,"CHD",6,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(20,"CMN")=0
VAR(20,"CON")=53295002
VAR(20,"DTS")=53295
VAR(20,"EQM")=0
VAR(20,"FSN","DSC")=791398013
VAR(20,"FSN","TRM")="Chronic otitis externa (disorder)"
VAR(20,"ICD",1,"COD")="H60.60"
VAR(20,"ICD",1,"TYP")="10D"
VAR(20,"ISA",1,"CON")=34936007
VAR(20,"ISA",1,"DTS")=34936
VAR(20,"ISA",2,"CON")=128297008
VAR(20,"ISA",2,"DTS")=128297
VAR(20,"ISA",3,"CON")=3135009
VAR(20,"ISA",3,"DTS")=3135
VAR(20,"ISA",4,"CON")=3135009
VAR(20,"ISA",4,"DTS")=3135
VAR(20,"LAT")=1
VAR(20,"PAS")=1
VAR(20,"PRB","DSC")="T1999006249"
VAR(20,"PRB","TRM")="Otitis externa (ear canal infection), chronic"
VAR(20,"PRE","DSC")=88624014
VAR(20,"PRE","TRM")="Chronic otitis externa"
VAR(20,"STS")="Chronic"
VAR(20,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(20,"SUB",2,"SUB")="IHS Problem List"
VAR(20,"SUB",3,"SUB")="SRCH Audiology"
VAR(20,"SUB",4,"SUB")="SRCH Dermatology"
VAR(20,"SUB",5,"SUB")="SRCH ENT"
VAR(20,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(20,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(20,"SUB",8,"SUB")="PICK ENT"
VAR(20,"SUB",9,"SUB")="PICK ENT - Ear"
VAR(20,"SYN",1,"DSC")=88625010
VAR(20,"SYN",1,"TRM")="Chronic otitis externa, NOS"
VAR(21,"ABN")=0
VAR(21,"CHD",1,"CON")=194207002
VAR(21,"CHD",1,"DTS")=194207
VAR(21,"CHD",1,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(21,"CMN")=0
VAR(21,"CON")=111898002
VAR(21,"DTS")=111898
VAR(21,"EPI")=0
VAR(21,"EQM","CON")=""
VAR(21,"EQM","DTS")=""
VAR(21,"EQM","LAT")=""
VAR(21,"EQM","XADT")=""
VAR(21,"EQM","XRDT")=""
VAR(21,"FSN","DSC")=634690013
VAR(21,"FSN","TRM")="Chronic mycotic otitis externa (disorder)"
VAR(21,"HEAL")=""
VAR(21,"ICD",1,"COD")="H60.399"
VAR(21,"ICD",1,"TYP")="10D"
VAR(21,"ICD",2,"COD")="B36.9"
VAR(21,"ICD",2,"TYP")="10D"
VAR(21,"ISA",1,"CON")=177010002
VAR(21,"ISA",1,"DTS")=177010
VAR(21,"ISA",1,"TRM")="Chronic infectious disease (disorder)"
VAR(21,"ISA",2,"CON")=232224009
VAR(21,"ISA",2,"DTS")=232224
VAR(21,"ISA",2,"TRM")="Chronic infective otitis externa (disorder)"
VAR(21,"ISA",3,"CON")=53295002
VAR(21,"ISA",3,"DTS")=53295
VAR(21,"ISA",3,"TRM")="Chronic otitis externa (disorder)"
VAR(21,"ISA",4,"CON")=53316003
VAR(21,"ISA",4,"DTS")=53316
VAR(21,"ISA",4,"TRM")="Otomycosis (disorder)"
VAR(21,"LAT")=1
VAR(21,"PAS")=1
VAR(21,"PRB","DSC")="T1999006250"
VAR(21,"PRB","TRM")="Otitis externa (ear canal infection), chronic mycotic"
VAR(21,"PRE","DSC")=179051014
VAR(21,"PRE","TRM")="Chronic mycotic otitis externa"
VAR(21,"STS")="Chronic"
The following example shows the first two and last two records returned of a Synonym lookup listing, with the add/retire date information being omitted and the Synonym, Preferred, and ICD information getting returned:

```plaintext
> $S SEARCH^BSTSAPI(OUT, IN)
> $W ^2
> ZW VAR
VAR(1, "ABN") = 0
VAR(1, "CMN") = 0
VAR(1, "CON") = 53295002
VAR(1, "DTS") = 53295
VAR(1, "EPI") = 0
VAR(1, "EQM", "CON") = ""
VAR(1, "EQM", "DTS") = ""
VAR(1, "EQM", "LAT") = ""
VAR(1, "EQM", "XADT") = ""
VAR(1, "EQM", "XRDT") = ""
VAR(1, "FSN", "DSC") = 791398013
VAR(1, "FSN", "TRM") = "Chronic otitis externa (disorder)"
VAR(1, "HEAL") = ""
VAR(1, "ICD", 1, "COD") = "H60.60"
VAR(1, "ICD", 1, "TYP") = "10D"
VAR(1, "LAT") = 0
VAR(1, "PAS") = 0
VAR(1, "PRB", "DSC") = 88624014
VAR(1, "PRB", "TRM") = "Chronic otitis externa"
VAR(1, "PRE", "DSC") = 88624014
VAR(1, "PRE", "TRM") = "Chronic otitis externa"
VAR(1, "STS") = ""
VAR(1, "SYN", 1, "DSC") = 88625010
VAR(1, "SYN", 1, "TRM") = "Chronic otitis externa, NOS"
VAR(2, "ABN") = 0
VAR(2, "CMN") = 0
VAR(2, "CON") = 232226006
VAR(2, "DTS") = 232226
VAR(2, "EPI") = 0
VAR(2, "PRB", "DSC") = 88624014
VAR(2, "PRB", "TRM") = "Chronic otitis externa"
VAR(2, "PRE", "DSC") = 88624014
VAR(2, "PRE", "TRM") = "Chronic otitis externa"
VAR(2, "STS") = ""
VAR(2, "SYN", 1, "DSC") = 88625010
VAR(2, "SYN", 1, "TRM") = "Chronic otitis externa, NOS"
```

Figure A-3: Synonym lookup list – add/retire date omitted
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")=620264015
VAR(2,"FSN","TRM")="Chronic viral otitis externa (disorder)"
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="H60.399"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ICD",2,"COD")="B34.9"
VAR(2,"ICD",2,"TYP")="10D"
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB","DSC")=347944017
VAR(2,"PRB","TRM")="Chronic viral otitis externa"
VAR(2,"PRE","DSC")=347944017
VAR(2,"PRE","TRM")="Chronic viral otitis externa"
VAR(2,"STS")=""

...
Figure A-4: Synonym lookup list – add/retire date omitted – synonym preferred, ICD returned

The following example shows the first two and last two records returned by a Synonym lookup listing where a local search was performed:

```sql
>S OUT="VAR", IN="CHRONIC OTITIS EXTERNA^S^^^^^^^^^1"

>W $SSEARCH^BSTSAPI(OUT,IN)
1
>ZW VAR
VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=111898002
VAR(1,"CHD",1,"DTS")=111898
VAR(1,"CHD",1,"TRM")="Chronic mycotic otitis externa (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=232236003
VAR(1,"CHD",2,"DTS")=232236
VAR(1,"CHD",2,"TRM")="Chronic non-infective otitis externa (disorder)"
VAR(1,"CHD",2,"XADT")=""
VAR(1,"CHD",2,"XRDT")=""
VAR(1,"CHD",3,"CON")=402208007
VAR(1,"CHD",3,"DTS")=402208
VAR(1,"CHD",3,"TRM")="Chronic seborrheic otitis externa (disorder)"
VAR(1,"CHD",3,"XADT")=""
VAR(1,"CHD",3,"XRDT")=""
VAR(1,"CHD",4,"CON")=232241006
VAR(1,"CHD",4,"DTS")=232241
VAR(1,"CHD",4,"TRM")="Chronic traumatic otitis externa (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=194207002
VAR(1,"CHD",5,"DTS")=194207
VAR(1,"CHD",5,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CMN")=0
```
VAR(1,"CON")=53295002
VAR(1,"DTS")=53295
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=791398013
VAR(1,"FSN","TRM")="Chronic otitis externa (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="H60.60"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=34936007
VAR(1,"ISA",1,"DTS")=34936
VAR(1,"ISA",1,"TRM")="Chronic dermatitis (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"ISA",2,"CON")=128297008
VAR(1,"ISA",2,"DTS")=128297
VAR(1,"ISA",2,"TRM")="Chronic disease of ear (disorder)"
VAR(1,"ISA",2,"XADT")=""
VAR(1,"ISA",2,"XRDT")=""
VAR(1,"ISA",3,"CON")=3135009
VAR(1,"ISA",3,"DTS")=3135
VAR(1,"ISA",3,"TRM")="Otitis externa (disorder)"
VAR(1,"ISA",3,"XADT")=""
VAR(1,"ISA",3,"XRDT")=""
VAR(1,"LAT")=1
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=88624014
VAR(1,"PRB","TRM")="Chronic otitis externa"
VAR(1,"PRE","DSC")=88624014
VAR(1,"PRE","TRM")="Chronic otitis externa"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")="Chronic"
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Audiology"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="SRCH Dermatology"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="SRCH ENT"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(1,"SUB",7,"XADT")=""
VAR(1,"SUB",7,"XRDT")=""
VAR(1,"SUB",8,"SUB")="PICK ENT"
VAR(1,"SUB",8,"XADT")=""
VAR(1,"SUB",8,"XRDT")=""
VAR(1,"SUB",9,"SUB")="PICK ENT - Ear"
VAR(1,"SUB",9,"XADT")=""
VAR(1,"SUB",9,"XRDT")=""
VAR(1,"SYN",1,"DSC")=88625010
VAR(1,"SYN",1,"TRM")="Chronic otitis externa, NOS"
VAR(1,"SYN",1,"XADT")=3120301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"XADT")=3120301
VAR(1,"XRDT")=3500101
VAR(2,"ABN")=0
VAR(2,"CHD",1,"CON")=111898002
VAR(2,"CHD",1,"DTS")=111898
VAR(2,"CHD",1,"TRM")="Chronic mycotic otitis externa (disorder)"
VAR(2,"CHD",1,"XADT")=""
VAR(2,"CHD",1,"XRDT")=""
VAR(2,"CHD",2,"CON")=232236003
VAR(2,"CHD",2,"DTS")=232236
VAR(2,"CHD",2,"TRM")="Chronic non-infective otitis externa (disorder)"
VAR(2,"CHD",2,"XADT")=""
VAR(2,"CHD",2,"XRDT")=""
VAR(2,"CHD",3,"CON")=402208007
VAR(2,"CHD",3,"DTS")=402208
VAR(2,"CHD",3,"TRM")="Chronic seborrheic otitis externa (disorder)"
VAR(2,"CHD",3,"XADT")=""
VAR(2,"CHD",3,"XRDT")=""
VAR(2,"CHD",4,"CON")=232241006
VAR(2,"CHD",4,"DTS")=232241
VAR(2,"CHD",4,"TRM")="Chronic traumatic otitis externa (disorder)"
VAR(2,"CHD",4,"XADT")=""
VAR(2,"CHD",4,"XRDT")=""
VAR(2,"CHD",5,"CON")=194207002
VAR(2,"CHD",5,"DTS")=194207
VAR(2,"CHD",5,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(2,"CHD",5,"XADT")=""
VAR(2,"CHD",5,"XRDT")=""
VAR(2,"CMN")=0
VAR(2,"CON")=53295002
VAR(2,"DTS")=53295
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")=791398013
VAR(2,"FSN","TRM")="Chronic otitis externa (disorder)"
VAR(2,"FSN","XADT")=3120301.07
VAR(2,"FSN","XRDT")=""
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="H60.60"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ICD",1,"XADT")=3161031
VAR(2,"ICD",1,"XRDT")=""
VAR(2,"ISA",1,"CON")=34936007
VAR(2,"ISA",1,"DTS")=34936
VAR(2,"ISA",1,"TRM")="Chronic dermatitis (disorder)"
VAR(2,"ISA",1,"XADT")=""
VAR(2,"ISA",1,"XRDT")=""
VAR(2,"ISA",2,"CON")=128297008
VAR(2,"ISA",2,"DTS")=128297
VAR(2,"ISA",2,"TRM")="Chronic disease of ear (disorder)"
VAR(2,"ISA",2,"XADT")=""
VAR(2,"ISA",2,"XRDT")=""
VAR(2,"ISA",3,"CON")=3135009
VAR(2,"ISA",3,"DTS")=3135
VAR(2,"ISA",3,"TRM")="Otitis externa (disorder)"
VAR(2,"ISA",3,"XADT")=""
VAR(2,"ISA",3,"XRDT")=""
VAR(2,"LAT")=1
VAR(2,"PAS")=1
VAR(2,"PRB","DSC")=88625010
VAR(2,"PRB","TRM")="Chronic otitis externa, NOS"
VAR(2,"PRE","DSC")=88624014
VAR(2,"PRE","TRM")="Chronic otitis externa"
VAR(2,"PRE","XADT")=3120301.07
VAR(2,"PRE","XRDT")=""
VAR(2,"STS")="Chronic"
VAR(2,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(2,"SUB",1,"XADT")=""
VAR(2,"SUB",1,"XRDT")=""
VAR(2,"SUB",2,"SUB")="IHS Problem List"
VAR(2,"SUB",2,"XADT")=""
VAR(2,"SUB",2,"XRDT")=""
VAR(2,"SUB",3,"SUB")="SRCH Audiology"
VAR(2,"SUB",3,"XADT")=""
VAR(2,"SUB",3,"XRDT")=""
VAR(2,"SUB",4,"SUB")="SRCH Dermatology"
VAR(2,"SUB",4,"XADT")=""
VAR(2,"SUB",4,"XRDT")=""
VAR(2,"SUB",5,"SUB")="SRCH ENT"
VAR(2,"SUB",5,"XADT")=""
VAR(2,"SUB",5,"XRDT")=""
VAR(2,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(2,"SUB",6,"XADT")=""
VAR(2,"SUB",6,"XRDT")=""
VAR(2,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(2,"SUB",7,"XADT")=""
VAR(2,"SUB",7,"XRDT")=""
VAR(2,"SUB",8,"SUB")="PICK ENT"
VAR(2,"SUB",8,"XADT")=""
VAR(2,"SUB",8,"XRDT")=""
VAR(2,"SUB",9,"SUB")="PICK ENT - Ear"
VAR(2,"SUB",9,"XADT")=""
VAR(2,"SUB",9,"XRDT")=""
VAR(2,"SYN",1,"DSC")=88625010
VAR(2,"SYN",1,"TRM")="Chronic otitis externa, NOS"
VAR(2,"SYN",1,"XADT")=3120301.07
VAR(2,"SYN",1,"XRDT")=""
VAR(2,"XADT")=3120301
VAR(2,"XRDT")=3500101

...

VAR(20,"ABN")=0
VAR(20,"CHD",1,"CON")=194207002
VAR(20,"CHD",1,"DTS")=194207
VAR(20,"CHD",1,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(20,"CHD",1,"XADT")=""
VAR(20,"CHD",1,"XRDT")=""
VAR(20,"CMN")=0
VAR(20,"CON")=111898002
VAR(20,"DTS")=111898
VAR(20,"EPI")=0
VAR(20,"EQM","CON")=""
VAR(20,"EQM","DTS")=""
VAR(20,"EQM","LAT")=""
VAR(20,"EQM","XADT")=""
VAR(20,"EQM","XRDT")=""
VAR(20,"FSN","DSC")=634690013
VAR(20,"FSN","TRM")="Chronic mycotic otitis externa (disorder)"
VAR(20,"FSN","XADT")=3120301.07
VAR(20,"FSN","XRDT")=""
VAR(20,"HEAL")=""
VAR(20,"ICD",1,"COD")="H60.399"
VAR(20,"ICD",1,"TYP")="10D"
VAR(20,"ICD",1,"XADT")=3161031
VAR(20,"ICD",1,"XRDT")=""
VAR(20,"ICD",2,"COD")="B36.9"
VAR(20,"ICD",2,"TYP")="10D"
VAR(20,"ICD",2,"XADT")=3161031
VAR(20,"ICD",2,"XRDT")=""
VAR(20,"ISA",1,"CON")=177010002
VAR(20,"ISA",1,"DTS")=177010
VAR(20,"ISA",1,"TRM")="Chronic infectious disease (disorder)"
VAR(20,"ISA",1,"XADT")=""
VAR(20,"ISA",1,"XRDT")=""
VAR(20,"ISA",2,"CON")=232224009
VAR(20,"ISA",2,"DTS")=232224
VAR(20,"ISA",2,"TRM")="Chronic infective otitis externa (disorder)"
VAR(20,"ISA",2,"XADT")=""
VAR(20,"ISA",2,"XRDT")=""
VAR(20,"ISA",3,"CON")=53295002
VAR(20,"ISA",3,"DTS")=53295
VAR(20,"ISA",3,"TRM")="Chronic otitis externa (disorder)"
VAR(20,"ISA",3,"XADT")=""
VAR(20,"ISA",3,"XRDT")=""
VAR(20,"ISA",4,"CON")=53316003
VAR(20,"ISA",4,"DTS")=53316
VAR(20,"ISA",4,"TRM")="Otomycosis (disorder)"
VAR(20,"ISA",4,"XADT")=""
VAR(20,"ISA",4,"XRDT")=""
VAR(20,"LAT")=1
VAR(20,"FAS")=1
VAR(20,"PRB","DSC")=179051014
VAR(20,"PRB","TRM")="Chronic mycotic otitis externa"
VAR(20,"PRE","DSC")=179051014
VAR(20,"PRE","TRM")="Chronic mycotic otitis externa"
VAR(20,"PRE","XADT")=3120301.07
VAR(20,"PRE","XRDT")=""
VAR(20,"STS")="Chronic"
VAR(20,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(20,"SUB",1,"XADT")=""
VAR(20,"SUB",1,"XRDT")=""
VAR(20,"SUB",2,"SUB")="IHS Problem List"
VAR(20,"SUB",2,"XADT")=""
VAR(20,"SUB",2,"XRDT")=""
VAR(20,"SUB",3,"SUB")="SRCH Audiology"
VAR(20,"SUB",3,"XADT")=""
VAR(20,"SUB",3,"XRDT")=""
VAR(20,"SUB",4,"SUB")="SRCH Dermatology"
VAR(20,"SUB",4,"XADT")=""
VAR(20,"SUB",4,"XRDT")=""
VAR(20,"SUB",5,"SUB")="SRCH ENT"
VAR(20,"SUB",5,"XADT")=""
VAR(20,"SUB",5,"XRDT")=""
VAR(20,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(20,"SUB",6,"XADT")=""
VAR(20,"SUB",6,"XRDT")=""
VAR(20,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(20,"SUB",7,"XADT")=""
VAR(20,"SUB",7,"XRDT")=""
VAR(20,"SUB",8,"SUB")="PICK ENT - Ear"
VAR(20,"SUB",8,"XADT")=""
VAR(20,"SUB",8,"XRDT")=""
VAR(20,"SYN",1,"DSC")="T1999006250"
VAR(20,"SYN",1,"TRM")="Otitis externa (ear canal infection), chronic mycotic"
VAR(20,"SYN",1,"XADT")=3140301.07
VAR(20,"SYN",1,"XRDT")=""
VAR(20,"SYN",2,"DSC")=1219702011
VAR(20,"SYN",2,"TRM")="Chronic fungal otitis externa"
VAR(20,"SYN",2,"XADT")=3120301.07
VAR(20,"SYN",2,"XRDT")=""
VAR(20,"XADT")=3120301
VAR(20,"XRDT")=3500101
VAR(21,"ABN")=0
VAR(21,"CHD",1,"CON")=194207002
VAR(21,"CHD",1,"DTS")=194207
VAR(21,"CHD",1,"TRM")="Chronic otitis externa due to aspergillosis (disorder)"
VAR(21,"CHD",1,"XADT")=""
VAR(21,"CHD",1,"XRDT")=""
VAR(21,"CMN")=0
VAR(21,"COND")=111898002
VAR(21,"DTS")=111898
VAR(21,"EPI")=0
VAR(21,"EQM", "CON")=""
VAR(21,"EQM", "DTS")=""
VAR(21,"EQM","LAT")=""
VAR(21,"EQM","XADT")=""
VAR(21,"EQM","XRDT")=""
VAR(21,"FSN","DSC")=634690013
VAR(21,"FSN","TRM")="Chronic mycotic otitis externa (disorder)"
VAR(21,"FSN","XADT")=3120301.07
VAR(21,"FSN","XRDT")=""
VAR(21,"HEAL")=""
VAR(21,"ICD",1,"COD")="H60.399"
VAR(21,"ICD",1,"TYP")="10D"
VAR(21,"ICD",1,"XADT")=3161031
VAR(21,"ICD",1,"XRDT")=""
VAR(21,"ICD",2,"COD")="B36.9"
VAR(21,"ICD",2,"TYP")="10D"
VAR(21,"ICD",2,"XADT")=3161031
VAR(21,"ICD",2,"XRDT")=""
VAR(21,"ISA",1,"CON")=177010002
VAR(21,"ISA",1,"DTS")=177010
VAR(21,"ISA",1,"TRM")="Chronic infectious disease (disorder)"
VAR(21,"ISA",1,"XADT")=""
VAR(21,"ISA",1,"XRDT")=""
VAR(21,"ISA",2,"CON")=232224009
VAR(21,"ISA",2,"DTS")=232224
VAR(21,"ISA",2,"TRM")="Chronic infective otitis externa (disorder)"
VAR(21,"ISA",2,"XADT")=""
VAR(21,"ISA",2,"XRDT")=""
VAR(21,"ISA",3,"CON")=53295002
VAR(21,"ISA",3,"DTS")=53295
VAR(21,"ISA",3,"TRM")="Chronic otitis externa (disorder)"
VAR(21,"ISA",3,"XADT")=""
VAR(21,"ISA",3,"XRDT")=""
VAR(21,"ISA",4,"CON")=53316003
VAR(21,"ISA",4,"DTS")=53316
VAR(21,"ISA",4,"TRM")="Otomycosis (disorder)"
VAR(21,"ISA",4,"XADT")=""
VAR(21,"ISA",4,"XRDT")=""
VAR(21,"LAT")=1
VAR(21,"PAS")=1
VAR(21,"PRB","DSC")=1219702011
VAR(21,"PRB","TRM")="Chronic fungal otitis externa"
VAR(21,"PRE","DSC")=179051014
VAR(21,"PRE","TRM")="Chronic mycotic otitis externa"
VAR(21,"PRE","XADT")=3120301.07
VAR(21,"PRE","XRDT")=""
VAR(21,"STS")="Chronic"
VAR(21,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(21,"SUB",1,"XADT")=""
VAR(21,"SUB",1,"XRDT")=""
VAR(21,"SUB",2,"SUB")="IHS Problem List"
VAR(21,"SUB",2,"XADT")=""
VAR(21,"SUB",2,"XRDT")=""
VAR(21,"SUB",3,"SUB")="SRCH Audiology"
VAR(21,"SUB",3,"XADT")=""
VAR(21,"SUB",3,"XRDT")=""
VAR(21,"SUB",4,"SUB")="SRCH Dermatology"
VAR(21,"SUB",4,"XADT")=""
VAR(21,"SUB",4,"XRDT")=""
VAR(21,"SUB",5,"SUB")="SRCH ENT"
VAR(21,"SUB",5,"XADT")=""
VAR(21,"SUB",5,"XRDT")=""
VAR(21,"SUB",6,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(21,"SUB",6,"XADT")=""
VAR(21,"SUB",6,"XRDT")=""
VAR(21,"SUB",7,"SUB")="EHR IPL PROMPT FOR LATERALITY"
VAR(21,"SUB",7,"XADT")=""
VAR(21,"SUB",7,"XRDT")=""
VAR(21,"SUB",8,"SUB")="PICK ENT - Ear"
VAR(21,"SUB",8,"XADT")=""
VAR(21,"SUB",8,"XRDT")=""
VAR(21,"SYN",1,"DSC")="T1999006250"
VAR(21,"SYN",1,"TRM")="Otitis externa (ear canal infection), chronic mycotic"
VAR(21,"SYN",1,"XADT")=3140301.07
VAR(21,"SYN",1,"XRDT")=""
VAR(21,"SYN",2,"DSC")=1219702011
VAR(21,"SYN",2,"TRM")="Chronic fungal otitis externa"
VAR(21,"SYN",2,"XADT")=3120301.07
VAR(21,"SYN",2,"XRDT")=""
VAR(21,"XADT")=3120301
VAR(21,"XRDT")=3500101
>

The following example shows the records returned of a search to look in a specified subset:

>S OUT="VAR",IN="HEART^F^36^SRCH Family History^^^^1"

>W $$SEARCH^BSTSAPI(OUT,IN)

VAR(1,"ABN")=0
VAR(1,"CMN")=1
VAR(1,"CON")=433305001
VAR(1,"DTS")=433305
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=2708363012
VAR(1,"FSN","TRM")="Family history of congestive heart failure (situation)"
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="Z82.49"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ISA",1,"CON")=429959009
VAR(1,"ISA",1,"DTS")=429959
VAR(1,"ISA",1,"TRM")="Family history of heart failure (situation)"
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=2764062012

Figure A-5: Synonym lookup list with local search
VAR(1,"PRB","TRM")="Family history of congestive heart failure"
VAR(1,"PRE","DSC")=2764062012
VAR(1,"PRE","TRM")="Family history of congestive heart failure"
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",3,"SUB")="SRCH Cardiology"
VAR(1,"SUB",4,"SUB")="SRCH Common Terms"
VAR(1,"SUB",5,"SUB")="SRCH Complementary Medicine"
VAR(1,"SUB",6,"SUB")="SRCH Family History"
VAR(2,"ABN")=0
VAR(2,"CHD",1,"CON")=275121006
VAR(2,"CHD",1,"DTS")=275121
VAR(2,"CHD",1,"TRM")="Family history: Angina (situation)"
VAR(2,"CHD",2,"CON")=266896003
VAR(2,"CHD",2,"DTS")=266896
VAR(2,"CHD",2,"TRM")="Family history: Ischemic heart disease at greater than 60 years (situation)"
VAR(2,"CHD",3,"CON")=266895004
VAR(2,"CHD",3,"DTS")=266895
VAR(2,"CHD",3,"TRM")="Family history: Ischemic heart disease at less than 60 years (situation)"
VAR(2,"CHD",4,"CON")=266897007
VAR(2,"CHD",4,"DTS")=266897
VAR(2,"CHD",4,"TRM")="Family history: Myocardial infarction (situation)"
VAR(2,"CMN")=1
VAR(2,"CON")=297242006
VAR(2,"DTS")=297242
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRD")=""
VAR(2,"FSN","DSC")=2610786013
VAR(2,"FSN","TRM")="Family history of ischemic heart disease (situation)"
VAR(2,"HEAL")=""
VAR(2,"ICD",1,"COD")="282.49"
VAR(2,"ICD",1,"TYP")="10D"
VAR(2,"ISA",1,"CON")=275120007
VAR(2,"ISA",1,"DTS")=275120
VAR(2,"ISA",1,"TRM")="Family history: Cardiac disorder (situation)"
VAR(2,"LAT")=0
VAR(2,"PAS")=1
VAR(2,"PRB","DSC")=437727012
VAR(2,"PRB","TRM")="Family history of ischemic heart disease"
VAR(2,"PRE","DSC")=437727012
VAR(2,"PRE","TRM")="Family history of ischemic heart disease"
VAR(2,"STS")=""
VAR(2,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(2,"SUB",2,"SUB")="IHS Problem List"
VAR(2,"SUB",3,"SUB")="SRCH Cardiology"
VAR(2,"SUB",4,"SUB")="SRCH Common Terms"
VAR(2,"SUB",5,"SUB")="SRCH Family History"
VAR(2,"SUB",6,"SUB")="SRCH Family Practice"
VAR(2,"SUB",7,"SUB")="SRCH Pediatrics"
VAR(2,"SYN",1,"DSC")="T1999000469"
VAR(2,"SYN",1,"TRM")="FH of ischemic heart disease"
VAR(2,"SYN",2,"DSC")=692552012
VAR(2,"SYN",2,"TRM")="Family history of ischemic heart disease (context-dependent category)"
VAR(2,"SYN",3,"DSC")=437730017
VAR(2,"SYN",3,"TRM")="FH: Ischemic heart disease"
VAR(2,"SYN",4,"DSC")=437729010
VAR(2,"SYN",4,"TRM")="FH: Ischaemic heart disease"
VAR(2,"SYN",5,"DSC")=437728019
VAR(2,"SYN",5,"TRM")="Family history of ischaemic heart disease"
VAR(3,"ABN")=0
VAR(3,"CMN")=0
VAR(3,"CON")=64041000119100
VAR(3,"DTS")=1124069933
VAR(3,"EPI")=0
VAR(3,"EQM","CON")=""
VAR(3,"EQM","DTS")=""
VAR(3,"EQM","LAT")=""
VAR(3,"EQM","XADT")=""
VAR(3,"EQM","XRDT")=""
VAR(3,"FSN","DSC")=3047735019
VAR(3,"FSN","TRM")="Family history of complex congenital heart disease (situation)"
VAR(3,"HEAL")=""
VAR(3,"ICD",1,"COD")="ZZZ.999"
VAR(3,"ICD",1,"TYP")="10D"
VAR(3,"ISA",1,"CON")=160364005
VAR(3,"ISA",1,"DTS")=160364
VAR(3,"ISA",1,"TRM")="Family history: Congenital heart disease (situation)"
VAR(3,"LAT")=0
VAR(3,"PAS")=0
VAR(3,"PRB","DSC")=3047806015
VAR(3,"PRB","TRM")="Family history of complex congenital heart disease"
VAR(3,"PRE","DSC")=3047806015
VAR(3,"PRE","TRM")="Family history of complex congenital heart disease"
VAR(3,"STS")=""
VAR(3,"SUB",1,"SUB")="SRCH Family History"
VAR(3,"SYN",1,"DSC")="T1999085567"
VAR(3,"SYN",1,"TRM")="Family history of complex congenital heart defect"
VAR(3,"SYN",2,"DSC")="T1999085626"
VAR(3,"SYN",2,"TRM")="Fhx of complex congenital heart defect"
VAR(4,"ABN")=0
VAR(4,"CMN")=0
VAR(4,"CON")=429958001
VAR(4,"DTS")=429958
VAR(4,"EPI")=0
VAR(4,"EQM","CON")=""
VAR(4,"EQM","DTS")=""
VAR(4,"EQM","LAT")=""
VAR(4,"EQM","XADT")=""
VAR(4,"EQM","XRDT")=""
VAR(4,"FSN","DSC")=2708295011
VAR(4,"FSN","TRM")="Family history of conduction disorder of the heart (situation)"
VAR(4,"HEAL")=""
VAR(4,"ICD",1,"COD")="282.49"
VAR(4,"ICD",1,"TYP")="10D"
VAR(4,"ISA",1,"CON")=698248002
VAR(4,"ISA",1,"DTS")=1124046853
VAR(4,"ISA",1,"TRM")="Family history of cardiac arrhythmia (situation)"
VAR(4,"LAT")=0
VAR(4,"PAS")=1
VAR(4,"PRB","DSC")=2764080015
VAR(4,"PRB","TRM")="Family history of conduction disorder of the heart"
VAR(4,"PRE","DSC")=2764080015
VAR(4,"PRE","TRM")="Family history of conduction disorder of the heart"
VAR(4,"STS")=""
VAR(4,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(4,"SUB",2,"SUB")="IHS Problem List"
VAR(4,"SUB",3,"SUB")="SRCH Family History"
VAR(4,"SYN",1,"DSC")=2764079018
VAR(4,"SYN",1,"TRM")="Family history of cardiac arrhythmia"
VAR(5,"ABN")=0
VAR(5,"CHD",1,"CON")=433305001
VAR(5,"CHD",1,"DTS")=433305
VAR(5,"CHD",1,"TRM")="Family history of congestive heart failure (situation)"
VAR(5,"CMN")=0
VAR(5,"CON")=4299590009
VAR(5,"DTS")=429959
VAR(5,"EPI")=0
VAR(5,"EQM","CON")=""
VAR(5,"EQM","DTS")=""
VAR(5,"EQM","LAT")=""
VAR(5,"EQM","XADT")=""
VAR(5,"EQM","XRDT")=""
VAR(5,"FSN","DSC")=2708296012
VAR(5,"FSN","TRM")="Family history of heart failure (situation)"
VAR(5,"HEAL")=""
VAR(5,"ICD",1,"COD")="Z82.49"
VAR(5,"ICD",1,"TYP")="10D"
VAR(5,"ISA",1,"CON")=275120007
VAR(5,"ISA",1,"DTS")=275120
VAR(5,"ISA",1,"TRM")="Family history: Cardiac disorder (situation)"
VAR(5,"LAT")=0
VAR(5,"PAS")=1
VAR(5,"PRB","DSC")=2764081016
VAR(5,"PRB","TRM")="Family history of heart failure"
VAR(5,"PRE","DSC")=2764081016
VAR(5,"PRE","TRM")="Family history of heart failure"
VAR(5,"STS")=""
VAR(5,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(5,"SUB",2,"SUB")="IHS Problem List"
VAR(5,"SUB",3,"SUB")="SRCH Complementary Medicine"
VAR(5,"SUB",4,"SUB")="SRCH Family History"
VAR(6,"ABN")=0
VAR(6,"CHD",1,"CON")=417648002
VAR(6,"CHD",1,"DTS")=417648
VAR(6,"CHD",1,"TRM")="Family history of pulmonary infundibular stenosis (situation)"
VAR(6,"CHD",2,"CON")=6404100019100
VAR(6,"CHD",2,"DTS")=1124069933
VAR(6,"CHD",2,"TRM")="Family history of complex congenital heart disease (situation)"
VAR(6,"CMN")=0
VAR(6,"CON")=160364005
VAR(6,"DTS")=160364
VAR(6,"EPI")=0
VAR(6,"EQM","CON")=""
VAR(6,"EQM","DTS")=""
VAR(6,"EQM","LAT")=""
VAR(6,"EQM","XADT")=""
VAR(6,"EQM","XRDT")=""
VAR(6,"FSN","DSC")=2607149013
VAR(6,"FSN","TRM")="Family history: Congenital heart disease (situation)"
VAR(6,"HEAL")=""
VAR(6,"ICD",1,"COD")="282.79"
VAR(6,"ICD",1,"TYP")="10D"
VAR(6,"ISA",1,"CON")=266908007
VAR(6,"ISA",1,"DTS")=266908
VAR(6,"ISA",1,"TRM")="Family history of congenital anomaly of cardiovascular system (situation)"
VAR(6,"ISA",2,"CON")=275120007
VAR(6,"ISA",2,"DTS")=275120
VAR(6,"ISA",2,"TRM")="Family history: Cardiac disorder (situation)"
VAR(6,"LAT")=0
VAR(6,"PAS")=1
VAR(6,"PRB","DSC")=249974019
VAR(6,"PRB","TRM")="FH: Congenital heart disease"
VAR(6,"PRE","DSC")=249974019
VAR(6,"PRE","TRM")="FH: Congenital heart disease"
VAR(6,"STS")=""
VAR(6,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(6,"SUB",2,"SUB")="IHS Problem List"
VAR(6,"SUB",3,"SUB")="SRCH Family History"
VAR(6,"SYN",1,"DSC")=2666595013
VAR(6,"SYN",1,"TRM")="Family history: Congenital heart disease"
VAR(6,"SYN",2,"DSC")=541266018
VAR(6,"SYN",2,"TRM")="Family history: Congenital heart disease (context-dependent category)"
VAR(6,"SYN",3,"DSC")=249973013
VAR(6,"SYN",3,"TRM")="FH: Congen heart disease"
VAR(7,"ABN")=0
VAR(7,"CMN")=0
VAR(7,"CON")=266896003
VAR(7,"DTS")=266896
VAR(7,"EPI")=0
VAR(7,"EQM","CON")=""
VAR(7,"EQM","DTS")=""
VAR(7,"EQM","LAT")=""
VAR(7,"EQM","XADT")=""
VAR(7,"EQM","XRDT")=""
VAR(7,"FSN","DSC")=2610064016
VAR(7,"FSN","TRM")="Family history: Ischemic heart disease at greater than 60 years (situation)"
VAR(7,"HEAL")=""
VAR(7,"ICD",1,"COD")="282.49"
VAR(7,"ICD",1,"TYP")="10D"
VAR(7,"ISA",1,"CON")=297242006
VAR(7,"ISA",1,"DTS")=297242
VAR(7,"ISA",1,"TRM")="Family history of ischemic heart disease (situation)"
VAR(7,"LAT")=0
VAR(7,"PAS")=1
VAR(7,"PRB","DSC")=397698019
VAR(7,"PRB","TRM")="FH: Ischemic heart disease at greater than 60 years"
VAR(7,"PRE","DSC")=397698019
VAR(7,"PRE","TRM")="FH: Ischemic heart disease at greater than 60 years"
VAR(7,"STS")=""
VAR(7,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(7,"SUB",2,"SUB")="IHS Problem List"
VAR(7,"SUB",3,"SUB")="SRCH Family History"
VAR(7,"SYN",1,"DSC")=2838827016
VAR(7,"SYN",1,"TRM")="Family history: Ischaemic heart disease at greater than 60 years"
VAR(7,"SYN",2,"DSC")=2669638016
VAR(7,"SYN",2,"TRM")="Family history: Ischemic heart disease at greater than 60 years"
VAR(7,"SYN",3,"DSC")=659445017
VAR(7,"SYN",3,"TRM")="Family history: Ischemic heart disease at greater than 60 years (context-dependent category)"
VAR(7,"SYN",4,"DSC")=397699010
VAR(7,"SYN",4,"TRM")="FH: Ischaemic heart disease at greater than 60 years"
VAR(8,"ABN")=0
VAR(8,"CMN")=0
VAR(8,"CON")=266895004
VAR(8,"DTS")=266895
VAR(8,"EPI")=0
VAR(8,"EQM","CON")=""
VAR(8,"EQM","DTS")=""
VAR(8,"EQM","LAT")=""
VAR(8,"EQM","XADT")=""
VAR(8,"EQM","XRDT")=""
VAR(8,"FSN","DSC")=2610063010
VAR(8,"FSN","TRM")="Family history: Ischemic heart disease at less than 60 years (situation)"
VAR(8,"HEAL")=""
VAR(8,"ICD",1,"COD")="Z82.49"
VAR(8,"ICD",1,"TYP")="10D"
VAR(8,"ISA",1,"CON")=297242006
VAR(8,"ISA",1,"DTS")=297242
VAR(8,"ISA",1,"TRM")="Family history of ischemic heart disease (situation)"
VAR(8,"LAT")=0
VAR(8,"PAS")=1
VAR(8,"PRB","DSC")=397696015
VAR(8,"PRB","TRM")="FH: Ischemic heart disease at less than 60 years"
VAR(8,"PRE","DSC")=397696015
VAR(8,"PRE","TRM")="FH: Ischemic heart disease at less than 60 years"
VAR(8,"STS")=""
VAR(8,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(8,"SUB",2,"SUB")="IHS Problem List"
VAR(8,"SUB",3,"SUB")="SRCH Family History"
VAR(8,"SYN",1,"DSC")=28388291017
VAR(8,"SYN",1,"TRM")="Family history: Ischaemic heart disease at less than 60 years"
VAR(8,"SYN",2,"DSC")=2669637014
VAR(8,"SYN",2,"TRM")="Family history: Ischemic heart disease at less than 60 years"
VAR(8,"SYN",3,"DSC")=659444018
VAR(8,"SYN",3,"TRM")="Family history: Ischemic heart disease at less than 60 years (context-dependent category)"
VAR(8,"SYN",4,"DSC")=397697012
VAR(8,"SYN",4,"TRM")="FH: Ischemic heart dis. <60"
VAR(8,"SYN",5,"DSC")=397695016
VAR(8,"SYN",5,"TRM")="FH: Ischaemic heart disease at less than 60 years"
VAR(8,"SYN",6,"DSC")=397694017
VAR(8,"SYN",6,"TRM")="FH: Ischaemic heart dis. <60"
VAR(9,"ABN")=0
VAR(9,"CMN")=0
VAR(9,"CON")=134439009
VAR(9,"DTS")=134439
VAR(9,"EPI")=0
VAR(9,"EQM","CON")=""
VAR(9,"EQM","DTS")=""
VAR(9,"EQM","LAT")=""
VAR(9,"EQM","XADT")=""
VAR(9,"EQM","XRDT")=""
VAR(9,"FSN","DSC")=2606613016
VAR(9,"FSN","TRM")="Family history: premature coronary heart disease (situation)"
VAR(9,"HEAL")=""
VAR(9,"ICD",1,"COD")="Z82.49"
VAR(9,"ICD",1,"TYP")="10D"
VAR(9,"ISA",1,"CON")=266894000
VAR(9,"ISA",1,"DTS")=266894
VAR(9,"ISA",1,"TRM")="Family history: Cardiovascular disease (situation)"
VAR(9,"LAT")=0
VAR(9,"PAS")=1
VAR(9,"PRB","DSC")=216245011
VAR(9,"PRB","TRM")="FH: premature coronary heart disease"
VAR(9,"PRE","DSC")=216245011
VAR(9,"PRE","TRM")="FH: premature coronary heart disease"
VAR(9,"STS")=""
VAR(9,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(9,"SUB",2,"SUB")="IHS Problem List"
VAR(9,"SUB",3,"SUB")="SRCH Family History"
VAR(9,"SYN",1,"DSC")=2664552011
VAR(9,"SYN",1,"TRM")="Family history: premature coronary heart disease"
VAR(9,"SYN",2,"DSC")=514018012
VAR(9,"SYN",2,"TRM")="Family history: premature coronary heart disease (context-dependent category)"
VAR(10,"ABN")=0
VAR(10,"CHD",1,"CON")=698248002
VAR(10,"CHD",1,"DTS")=1124046853
VAR(10,"CHD",1,"TRM")="Family history of cardiac arrhythmia (situation)"
VAR(10,"CHD",2,"CON")=430091005
VAR(10,"CHD",2,"DTS")=430091
VAR(10,"CHD",2,"TRM")="Family history of coronary arteriosclerosis (situation)"
VAR(10,"CHD",3,"CON")=429978009
VAR(10,"CHD",3,"DTS")=429978
VAR(10,"CHD",3,"TRM")="Family history of endocarditis (situation)"
VAR(10,"CHD",4,"CON")=429959009
VAR(10,"CHD",4,"DTS")=429959
VAR(10,"CHD",4,"TRM")="Family history of heart failure (situation)"
VAR(10,"CHD",5,"CON")=297242006
VAR(10,"CHD",5,"DTS")=297242
VAR(10,"CHD",5,"TRM")="Family history of ischemic heart disease (situation)"
VAR(10,"CHD",6,"CON")=430730004
VAR(10,"CHD",6,"DTS")=430730
VAR(10,"CHD",6,"TRM")="Family history of mitral valve regurgitation (situation)"
VAR(10,"CHD",7,"CON")=439154009
VAR(10,"CHD",7,"DTS")=439154
VAR(10,"CHD",7,"TRM")="Family history of myocarditis (situation)"
VAR(10,"CHD",8,"CON")=429952000
VAR(10,"CHD",8,"DTS")=429952
VAR(10,"CHD",8,"TRM")="Family history of stenosis of aortic valve (situation)"
VAR(10,"CHD",9,"CON")=439154009
VAR(10,"CHD",9,"DTS")=439154
VAR(10,"CHD",9,"TRM")="Family history of mitral valve regurgitation (situation)"
VAR(10,"CHD",10,"CON")=160364005
VAR(10,"CHD",10,"DTS")=160364
VAR(10,"CHD",10,"TRM")="Family history: Congenital heart disease (situation)"
VAR(10,"CHD",11,"CON")=275124003
VAR(10,"CHD",11,"DTS")=275124
VAR(10,"CHD",11,"TRM")="Family history: Coronary thrombosis (situation)"
VAR(10,"CHD",12,"CON")=7280001000004103
VAR(10,"CHD",12,"DTS")=1124057271
VAR(10,"CHD",12,"TRM")="Family history of pulmonic valve stenosis (situation)"
VAR(10,"CHD",13,"CON")=117361000119104
VAR(10,"CHD",13,"DTS")=1124069706
VAR(10,"CHD",13,"TRM")="Family history of sudden cardiac death (situation)"
VAR(10,"CHD",14,"CON")=9400001000004105
VAR(10,"CHD",14,"DTS")=1124056675
VAR(10,"CHD",14,"TRM")="Family history of ventricular aneurysm (situation)"
VAR(10,"CMN")=0
VAR(10,"CON")=275120007
VAR(10,"DTS")=275120
VAR(10,"EPI")=0
VAR(10,"EQM","CON")=""
VAR(10,"EQM","DTS")=""
VAR(10,"EQM","LAT")=""
VAR(10,"EQM","XADT")=""
VAR(10,"EQM","XRDT")=""
VAR(10,"FSN","DSC")=2610340013
VAR(10,"FSN","TRM")="Family history: Cardiac disorder (situation)"
VAR(10,"HEAL")=""
VAR(10,"ICD",1,"COD")="282.49"
VAR(10,"ICD",1,"TYP")="10D"
VAR(10,"ISA",1,"CON")=266894000
VAR(10,"ISA",1,"DTS")=266894
VAR(10,"ISA",1,"TRM")="Family history: Cardiovascular disease (situation)"
VAR(10,"LAT")=0
VAR(10,"PAS")=1
VAR(10,"PRB","DSC")=411052015
VAR(10,"PRB","TRM")="FH: Cardiac disorder"
VAR(10,"PRE","DSC")=411052015
VAR(10,"PRE","TRM")="FH: Cardiac disorder"
VAR(10,"STS")=""  
VAR(10,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"  
VAR(10,"SUB",2,"SUB")="IHS Problem List"  
VAR(10,"SUB",3,"SUB")="SRCH Family History"  
VAR(10,"SYN",1,"DSC")=2669864012  
VAR(10,"SYN",1,"TRM")="Family history: Cardiac disorder"  
VAR(10,"SYN",2,"DSC")=1495321016  
VAR(10,"SYN",2,"TRM")="FH: heart disorder"  
VAR(10,"SYN",3,"DSC")=1495320015  
VAR(10,"SYN",3,"TRM")="FH: cardiac disorder"  
VAR(10,"SYN",4,"DSC")=1495319014  
VAR(10,"SYN",4,"TRM")="FH: Heart disorder"  
VAR(10,"SYN",5,"DSC")=667954016  
VAR(10,"SYN",5,"TRM")="Family history: Cardiac disorder (context-dependent category)"

Figure A-6: Specified subset search

The follow example shows how to use the parameter to control the maximum results to return. In this case, ‘4’ results were requested. Just Synonym/Preferred information is getting returned:

```plaintext
> S OUT="VAR", IN="ACUTE OTITIS MEDIA^S^^^^4^SP^1"
> W $$SEARCH^BSTSAPI(OUT, IN)
> ZW VAR
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=3110003
VAR(1,"DTS")=3110
VAR(1,"EPI")=0
VAR(1,"EQC","Bilateral","CON")=194290005
VAR(1,"EQC","Bilateral","DTS")=194290
VAR(1,"EQC","Bilateral","XADT")=3160714
VAR(1,"EQC","Bilateral","XRDT")=""
VAR(1,"EQC","Left","CON")=194288009
VAR(1,"EQC","Left","DTS")=194288
VAR(1,"EQC","Left","XADT")=3160714
VAR(1,"EQC","Left","XRDT")=""
VAR(1,"EQC","Right","CON")=194289001
VAR(1,"EQC","Right","DTS")=194289
VAR(1,"EQC","Right","XADT")=3160714
VAR(1,"EQC","Right","XRDT")=""
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=762183010
VAR(1,"FSN","TRM")="Acute otitis media (disorder)"
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
```
VAR(1, "PRB", "DSC")=6257016
VAR(1, "PRB", "TRM")="Acute otitis media"
VAR(1, "PRE", "DSC")=6257016
VAR(1, "PRE", "TRM")="Acute otitis media"
VAR(1, "STS")=""
VAR(1, "SYN", 1, "DSC")=1227430015
VAR(1, "SYN", 1, "TRM")="AO - Acute otitis media"
VAR(1, "SYN", 2, "DSC")=6258014
VAR(1, "SYN", 2, "TRM")="Acute otitis media, NOS"
VAR(2, "ABN")=0
VAR(2, "CMN")=0
VAR(2, "CON")=194288009
VAR(2, "DTS")=194288
VAR(2, "EPI")=0
VAR(2, "EQM", "CON")=3110003
VAR(2, "EQM", "DTS")=3110
VAR(2, "EQM", "LAT")="Left"
VAR(2, "EQM", "XADT")=3160714
VAR(2, "EQM", "XRDT")=""
VAR(2, "FSN", "DSC")=762183010
VAR(2, "FSN", "TRM")="Acute otitis media (disorder)"
VAR(2, "HEAL")=""
VAR(2, "LAT")=0
VAR(2, "PAS")=0
VAR(2, "PRB", "DSC")=299071011
VAR(2, "PRB", "TRM")="Acute left otitis media"
VAR(2, "PRE", "DSC")=299071011
VAR(2, "PRE", "TRM")="Acute left otitis media"
VAR(2, "STS")=""
VAR(3, "ABN")=0
VAR(3, "CMN")=0
VAR(3, "CON")=3110003
VAR(3, "DTS")=3110
VAR(3, "EPI")=0
VAR(3, "EQC", "Bilateral", "CON")=194290005
VAR(3, "EQC", "Bilateral", "DTS")=194290
VAR(3, "EQC", "Bilateral", "XADT")=3160714
VAR(3, "EQC", "Bilateral", "XRDT")=""
VAR(3, "EQC", "Left", "CON")=194288009
VAR(3, "EQC", "Left", "DTS")=194288
VAR(3, "EQC", "Left", "XADT")=3160714
VAR(3, "EQC", "Left", "XRDT")=""
VAR(3, "EQC", "Right", "CON")=194289001
VAR(3, "EQC", "Right", "DTS")=194289
VAR(3, "EQC", "Right", "XADT")=3160714
VAR(3, "EQC", "Right", "XRDT")=""
VAR(3, "EQM", "CON")=""
VAR(3, "EQM", "DTS")=""
VAR(3, "EQM", "LAT")=""
VAR(3, "EQM", "XADT")=""
VAR(3, "EQM", "XRDT")=""
VAR(3, "FSN", "DSC")=762183010
VAR(3, "FSN", "TRM")="Acute otitis media (disorder)"
VAR(3, "HEAL")=""
VAR(3, "LAT")=0
VAR(3, "PAS")=0
VAR(3, "PRB", "DSC")=1227430015
Figure A-7: Maximum results parameter

The following examples show how the Batch parameters can be used to return partial search listings. The first call performs a search which will return up to four records. In this case two terms will be returned, starting with the first term:

```
>S OUT="VAR",IN="DIABETES^F^^^^4^SP^1^1^2"
>W $$SEARCH^BSTSAPI("VAR","DIABETES^F^^^^4^SP^1^1^2")
```

```
>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=1481000119100
VAR(1,"DTS")=1124049555
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=656541000124118
```
Figure A-8: Batch parameters with partial search listings

The next call performs a search which will return up to four records. In this case, two terms will be returned, starting with the third term in the total list of results:

```
>S OUT="VAR",IN="DIABETES^F^^^^4^SP^1^3^2"
>W $SEARCH^BSTSAPI(OUT,IN)
2^>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=1481000119100
VAR(1,"DTS")=1124049555
```
VAR(1, "EPI")=0
VAR(1, "EQM", "CON")=""
VAR(1, "EQM", "DTS")=""
VAR(1, "EQM", "LAT")=""
VAR(1, "EQM", "XADT")=""
VAR(1, "EQM", "XRDT")=""
VAR(1, "FSN", "DSC")=656541000124118
VAR(1, "FSN", "TRM")="Diabetes mellitus type 2 without retinopathy (disorder)"
VAR(1, "HEAL")=""
VAR(1, "LAT")=0
VAR(1, "PAS")=0
VAR(1, "PRB", "DSC")=3013049012
VAR(1, "PRB", "TRM")="Diabetes mellitus type 2 without retinopathy"
VAR(1, "PRE", "DSC")=3013049012
VAR(1, "PRE", "TRM")="Diabetes mellitus type 2 without retinopathy"
VAR(1, "STS")=""
VAR(1, "SYN", 1, "DSC")=11801000119113
VAR(1, "SYN", 1, "TRM")="Diabetes type 2, without retinopathy"
VAR(1, "SYN", 2, "DSC")=11791000119112
VAR(1, "SYN", 2, "TRM")="DM 2 wo diabetic retinopathy"
VAR(1, "SYN", 3, "DSC")=656551000124116
VAR(1, "SYN", 3, "TRM")="Diabetes mellitus type 2 without retinopathy"
VAR(2, "ABN")=0
VAR(2, "CMN")=0
VAR(2, "CON")=427571000
VAR(2, "DTS")=427571
VAR(2, "EPI")=0
VAR(2, "EQM", "CON")=""
VAR(2, "EQM", "DTS")=""
VAR(2, "EQM", "LAT")=""
VAR(2, "EQM", "XADT")=""
VAR(2, "EQM", "XRDT")=""
VAR(2, "FSN", "DSC")=2663094011
VAR(2, "FSN", "TRM")="Amyotrophy due to type 1 diabetes mellitus (disorder)"
VAR(2, "HEAL")=""
VAR(2, "LAT")=0
VAR(2, "PAS")=0
VAR(2, "PRB", "DSC")=2675115014
VAR(2, "PRB", "TRM")="Amyotrophy due to type 1 diabetes mellitus"
VAR(2, "PRE", "DSC")=2675115014
VAR(2, "PRE", "TRM")="Amyotrophy due to type 1 diabetes mellitus"
VAR(2, "STS")=""
VAR(2, "SYN", 1, "DSC")=320601000119114
VAR(2, "SYN", 1, "TRM")="Diabetes, type 1 with amyotrophy"
VAR(2, "SYN", 2, "DSC")=320591000119119
VAR(2, "SYN", 2, "TRM")="DM 1 w diabetic amyotrophy"

Figure A-9: Batch parameters, returning results in groups

The following example shows the first two and last two records (of the up to 25 records) returned of a RxNorm codeset lookup:

>S OUT="VAR", IN="ACACIA^S^1552"
>W $$SEARCH^BSTSAPI(OUT,IN)
2^>
ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=851732
VAR(1,"DTS")=11328554
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=2973307
VAR(1,"FSN","TRM")="Acacia pollen extract"
VAR(1,"FSN","XADT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")=2973307
VAR(1,"PRB","TRM")="Acacia pollen extract"
VAR(1,"PRE","DSC")=2973307
VAR(1,"PRE","TRM")="Acacia pollen extract"
VAR(1,"PRE","XADT")=""
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="RXNO SRCH Drug Ingredients All"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"TTY",1,"TTY")="IN"
VAR(1,"TTY",1,"XADT")=3091101.06
VAR(1,"TTY",1,"XRDT")=3500101.19
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
VAR(2,"ABN")=0
VAR(2,"CMN")=0
VAR(2,"CON")=1362813
VAR(2,"DTS")=11597903
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")=5040371
VAR(2,"FSN","TRM")="Acacia decurrens extract"
VAR(2,"FSN","XADT")=""
VAR(2,"HEAL")=""
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB","DSC")=5040371
VAR(2,"PRB","TRM")="Acacia decurrens extract"
VAR(2,"PRE","DSC")=5040371
VAR(2,"PRE","TRM")="Acacia decurrens extract"
VAR(2,"PRE","XADT")=""
VAR(2,"PRE","XRDT")=""
VAR(2,"STS")=""
VAR(2,"SUB",1,"SUB")="RXNO SRCH Drug Ingredients All"
VAR(2,"SUB",1,"XADT")=""
VAR(2,"SUB",1,"XRDT")=""
VAR(2,"TTY",1,"TTY")="IN"
VAR(2,"TTY",1,"XADT")=3130107.07
VAR(2,"TTY",1,"XRDT")=3500101.19
VAR(2,"XADT")=""
VAR(2,"XRDT")=""

...

VAR(24,"ABN")=0
VAR(24,"CMN")=0
VAR(24,"CON")=895356
VAR(24,"DTS")=11356365
VAR(24,"EPI")=0
VAR(24,"EQM","CON")=""
VAR(24,"EQM","DTS")=""
VAR(24,"EQM","LAT")=""
VAR(24,"EQM","XADT")=""
VAR(24,"EQM","XRDT")=""
VAR(24,"FSN","DSC")=3049338
VAR(24,"FSN","TRM")="Cootamundra wattle pollen extract 50 MG/ML Injectable Solution"
VAR(24,"FSN","XADT")=""
VAR(24,"FSN","XRDT")=""
VAR(24,"HEAL")=""
VAR(24,"LAT")=0
VAR(24,"PAS")=0
VAR(24,"PRB","DSC")=3057802
VAR(24,"PRB","TRM")="Acacia baileyana pollen extract 0.05 GM/ML Injectable Solution"
VAR(24,"PRB","DSC")=3049338
VAR(24,"PRB","TRM")="Cootamundra wattle pollen extract 50 MG/ML Injectable Solution"
VAR(24,"PRE","XADT")=""
VAR(24,"PRE","XRDT")=""
VAR(24,"STS")=""
VAR(24,"SYN",1,"DSC")=3057802
VAR(24,"SYN",1,"TRM")="Acacia baileyana pollen extract 0.05 GM/ML Injectable Solution"
VAR(24,"SYN",1,"XADT")=""
VAR(24,"SYN",1,"XRDT")=""
VAR(24,"SYN",2,"DSC")=3049555
VAR(24,"SYN",2,"TRM")="Acacia baileyana pollen extract 50 MG/ML Injectable Solution"
VAR(24,"SYN",2,"XADT")=""
VAR(24,"SYN",2,"XRDT")=""
VAR(24,"TTY",1,"TTY")="SCD"
VAR(24,"TTY",1,"XADT")=3110606.06
VAR(24,"TTY",1,"XRDT")=3500101.19
VAR(24,"XADT")=""
VAR(24,"XRDT")=""
VAR(25,"ABN")=0
VAR(25,"CMN")=0
VAR(25,"CON")=899502
VAR(25,"DTS")=11360581
VAR(25,"EPI")=0
VAR(25,"EQM","CON")=""
VAR(25,"EQM","DTS")=""
VAR(25,"EQM","LAT")=""
VAR(25,"EQM","XADT")=""
VAR(25,"EQM","XRDT")=""
VAR(25,"FSN","DSC")=3057065
VAR(25,"FSN","TRM")="Sydney golden wattle pollen extract 500 UNT/ML Injectable Solution"
VAR(25,"FSN","XADT")=""
VAR(25,"FSN","XRDT")=""
VAR(25,"HEAL")=""
VAR(25,"LAT")=0
VAR(25,"PAS")=0
VAR(25,"PRB","DSC")=3057066
VAR(25,"PRB","TRM")="acacia longifolia pollen extract 500 UNT/ML Injectable Solution"
VAR(25,"PRB","DSC")=3057065
VAR(25,"PRE","DSC")=3057065
VAR(25,"PRE","TRM")="Sydney golden wattle pollen extract 500 UNT/ML Injectable Solution"
VAR(25,"PRE","XADT")=""
VAR(25,"PRE","XRDT")=""
VAR(25,"STS")=""
VAR(25,"SYN",1,"DSC")=3057066
VAR(25,"SYN",1,"TRM")="acacia longifolia pollen extract 500 UNT/ML Injectable Solution"
VAR(25,"SYN",1,"XADT")=""
VAR(25,"SYN",1,"XRDT")=""
VAR(25,"TTY",1,"TTY")="SCD"
VAR(25,"TTY",1,"XADT")=3100401.06
VAR(25,"TTY",1,"XRDT")=3500101.19
VAR(25,"XADT")=""
VAR(25,"XRDT")=""

Figure A-10: RxNorm codeset lookup

The following example shows the first two and last two records (of the up to 10 records) returned of a UNII codeset lookup:

```plaintext
>S OUT="VAR",IN="ACACIA^S^5180^^^10"
>W $$SEARCH^BSTSAPI(OUT,IN)
2^>
ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")="24SO2J2960"
VAR(1,"DTS")=8773
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
```
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="24S02J2960.8773"
VAR(1,"FSN","TRM")="ACACIA LONGIFOLIA POLLEN"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="24S02J2960.71552"
VAR(1,"PRB","TRM")="POLLENS - TREES, ACACIA ACACIA LONGIFOLIA"
VAR(1,"STS")=""
VAR(1,"SYN",1,"DSC")="24S02J2960.295787"
VAR(1,"SYN",1,"TRM")="ACACIA LONGIFOLIA POLLEN [WHO-DD]"
VAR(1,"SYN",1,"XADT")=""
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")="24S02J2960.295786"
VAR(1,"SYN",2,"TRM")="ALLERGENIC EXTRACT- ACACIA ACACIA TONGIFOLIA"
VAR(1,"SYN",2,"XADT")=""
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")="24S02J2960.165113"
VAR(1,"SYN",3,"TRM")="SYDNEY GOLDEN WATTLE POLLEN EXTRACT"
VAR(1,"SYN",3,"XADT")=""
VAR(1,"SYN",3,"XRDT")=""
VAR(1,"SYN",4,"DSC")="24S02J2960.87209"
VAR(1,"SYN",4,"TRM")="ACACIA LONGIFOLIA POLLEN EXTRACT"
VAR(1,"SYN",4,"XADT")=""
VAR(1,"SYN",4,"XRDT")=""
VAR(1,"SYN",5,"DSC")="24S02J2960.71552"
VAR(1,"SYN",5,"TRM")="POLLENS - TREES, ACACIA ACACIA LONGIFOLIA"
VAR(1,"SYN",5,"XADT")=""
VAR(1,"SYN",5,"XRDT")=""
VAR(1,"SYN",6,"DSC")="24S02J2960.8775"
VAR(1,"SYN",6,"TRM")="WESTERN YARROW POLLEN"
VAR(1,"SYN",6,"XADT")=""
VAR(1,"SYN",6,"XRDT")=""
VAR(1,"SYN",7,"DSC")="24S02J2960.8774"
VAR(1,"SYN",7,"TRM")="SYDNEY GOLDEN WATTLE POLLEN"
VAR(1,"SYN",7,"XADT")=""
VAR(1,"SYN",7,"XRDT")=""
VAR(1,"SYN",8,"DSC")="24S02J2960.8772"
VAR(1,"SYN",8,"TRM")="ACACIA LATIFOLIA POLLEN"
VAR(1,"SYN",8,"XADT")=""
VAR(1,"SYN",8,"XRDT")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
VAR(2,"ABN")=0
VAR(2,"CMN")=0
VAR(2,"CON")="24S02J2960"
VAR(2,"DTS")=8773
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")="24S02J2960.8773"
VAR(2,"FSN","TRM")="ACACIA LONGIFOLIA POLLEN"
VAR(2,"FSN","XADT")=""
VAR(2,"FSN","XRDT")=""
VAR(2,"HEAL")=""
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB","DSC")="24SO2J2960.295786"
VAR(2,"PRB","TRM")="ALLERGENIC EXTRACT- ACACIA ACACIA TONGIFOLIA"
VAR(2,"STS")=""
VAR(2,"SYN",1,"DSC")="24SO2J2960.295787"
VAR(2,"SYN",1,"TRM")="ACACIA LONGIFOLIA POLLEN [WHO-DD]"
VAR(2,"SYN",1,"XADT")=""
VAR(2,"SYN",1,"XRDT")=""
VAR(2,"SYN",2,"DSC")="24SO2J2960.295786"
VAR(2,"SYN",2,"TRM")="ALLERGENIC EXTRACT- ACACIA ACACIA TONGIFOLIA"
VAR(2,"SYN",2,"XADT")=""
VAR(2,"SYN",2,"XRDT")=""
VAR(2,"SYN",3,"DSC")="24SO2J2960.165113"
VAR(2,"SYN",3,"TRM")="SYDNEY GOLDEN WATTLE POLLEN EXTRACT"
VAR(2,"SYN",3,"XADT")=""
VAR(2,"SYN",3,"XRDT")=""
VAR(2,"SYN",4,"DSC")="24SO2J2960.87209"
VAR(2,"SYN",4,"TRM")="ACACIA LONGIFOLIA POLLEN EXTRACT"
VAR(2,"SYN",4,"XADT")=""
VAR(2,"SYN",4,"XRDT")=""
VAR(2,"SYN",5,"DSC")="24SO2J2960.71552"
VAR(2,"SYN",5,"TRM")="POLENS - TREES, ACACIA ACACIA LONGIFOLIA"
VAR(2,"SYN",5,"XADT")=""
VAR(2,"SYN",5,"XRDT")=""
VAR(2,"SYN",6,"DSC")="24SO2J2960.8775"
VAR(2,"SYN",6,"TRM")="WESTERN YARROW POLLEN"
VAR(2,"SYN",6,"XADT")=""
VAR(2,"SYN",6,"XRDT")=""
VAR(2,"SYN",7,"DSC")="24SO2J2960.8774"
VAR(2,"SYN",7,"TRM")="SYDNEY GOLDEN WATTLE POLLEN"
VAR(2,"SYN",7,"XADT")=""
VAR(2,"SYN",7,"XRDT")=""
VAR(2,"SYN",8,"DSC")="24SO2J2960.8772"
VAR(2,"SYN",8,"TRM")="ACACIA LATIFOLIA POLLEN"
VAR(2,"SYN",8,"XADT")=""
VAR(2,"SYN",8,"XRDT")=""
VAR(2,"XADT")=""
VAR(2,"XRDT")=""
...

VAR(9,"ABN")=0
VAR(9,"CMN")=0
VAR(9,"CON")="5C5403N26O"
VAR(9,"DTS")=57
VAR(9,"EPI")=0
VAR(9,"EQM","CON")=""
VAR(9,"EQM","DTS")=""
VAR(9,"EQM","LAT")=""
VAR(9,"EQM","XADT")=""
VAR(9,"EQM","XRDT")=""
VAR(9,"FSN","DSC")="5C5403N26O.57"
VAR(9,"FSN","TRM")="ACACIA"
VAR(9,"FSN","XADT")=""
VAR(9,"FSN","XRDT")=""
VAR(9,"HEAL")=""
VAR(9,"LAT")=0
VAR(9,"PAS")=0
VAR(9,"PRB","DSC")="5C5403N26O.57"
VAR(9,"PRB","TRM")="ACACIA"
VAR(9,"STS")=""
VAR(9,"SYN",1,"DSC")="5C5403N26O.316825"
VAR(9,"SYN",1,"TRM")="ACACIA POWDER [VANDF]"
VAR(9,"SYN",1,"XRDT")=""
VAR(9,"SYN",2,"DSC")="5C5403N26O.316824"
VAR(9,"SYN",2,"TRM")="ACACIA [VANDF]"
VAR(9,"SYN",2,"XRDT")=""
VAR(9,"SYN",3,"DSC")="5C5403N26O.316823"
VAR(9,"SYN",3,"TRM")="GUM ARABIC [VANDF]"
VAR(9,"SYN",3,"XRDT")=""
VAR(9,"SYN",4,"DSC")="5C5403N26O.316822"
VAR(9,"SYN",4,"TRM")="PLANTS AND PLANT PARTS, GUM, ACACIA OR ARABIC ACACIA SENEGAL"
VAR(9,"SYN",4,"XRDT")=""
VAR(9,"SYN",5,"DSC")="5C5403N26O.316821"
VAR(9,"SYN",5,"TRM")="ACACIA SENEGAL GUM [WHO-DD]"
VAR(9,"SYN",5,"XRDT")=""
VAR(9,"SYN",6,"DSC")="5C5403N26O.316820"
VAR(9,"SYN",6,"TRM")="ACACIA SENEGAL RESIN [WHO-DD]"
VAR(9,"SYN",6,"XRDT")=""
VAR(9,"SYN",7,"DSC")="5C5403N26O.316819"
VAR(9,"SYN",7,"TRM")="ACACIA [HSDB]"
VAR(9,"SYN",7,"XRDT")=""
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<td>VAR(10,&quot;SYN&quot;,34,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,34,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,35,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21196&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,35,&quot;TRM&quot;)</td>
<td>&quot;ACACIAE GUMMI&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,35,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,35,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,36,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21195&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,36,&quot;TRM&quot;)</td>
<td>&quot;ACACIA VOLKII RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,36,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,36,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,37,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21194&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,37,&quot;TRM&quot;)</td>
<td>&quot;ACACIA SPINOSA RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,37,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,37,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,38,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21193&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,38,&quot;TRM&quot;)</td>
<td>&quot;ACACIA RUPESTRIS RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,38,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,38,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,39,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21192&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,39,&quot;TRM&quot;)</td>
<td>&quot;ACACIA OXYOSPRION RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,39,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,39,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,40,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21191&quot;</td>
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<td></td>
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<tr>
<td>VAR(10,&quot;SYN&quot;,40,&quot;TRM&quot;)</td>
<td>&quot;ACACIA MUCILAGE&quot;</td>
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<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,40,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,40,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,41,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21190&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,41,&quot;TRM&quot;)</td>
<td>&quot;ACACIA CUFODONTII RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,41,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,41,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,42,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21189&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,42,&quot;TRM&quot;)</td>
<td>&quot;ACACIA CIRCUMMARGINATA RESIN&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,42,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,42,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,43,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.21188&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,43,&quot;TRM&quot;)</td>
<td>&quot;ACACIA ARABICA&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,43,&quot;XADT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,43,&quot;XRDT&quot;)</td>
<td>&quot;&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR(10,&quot;SYN&quot;,44,&quot;DSC&quot;)</td>
<td>&quot;SC5403N26O.8759&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following example shows the records returned on a search on the GMRA Signs Symptoms (32772) namespace lookup:

```plaintext
>S OUT="VAR",IN="ABDOMINAL^S^32772"
>W $$SEARCH^BSTSAPI(OUT,IN)
2^>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"ASM",1,"CON")=21522001
VAR(1,"ASM",1,"DTS")=21522
VAR(1,"CMN")=0
VAR(1,"CON")="ABDOMINAL PAIN"
VAR(1,"DTS")=692
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="T122"
VAR(1,"FSN","TRM")="ABDOMINAL PAIN"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="T122"
VAR(1,"PRB","TRM")="ABDOMINAL PAIN"
VAR(1,"STS")=""
VAR(1,"SYN",1,"DSC")="T578"
```

Figure A-11: UNII codeset lookup
VAR(1,"SYN",1,"TRM")="GI PAIN"
VAR(1,"SYN",1,"XADT")=""
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")="T577"
VAR(1,"SYN",2,"TRM")="GASTROINTESTINAL PAIN"
VAR(1,"SYN",2,"XADT")=""
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
VAR(1,"ABN")=0
VAR(2,"ABN")=0
VAR(2,"ASM",1,"CON")=51197009
VAR(2,"ASM",1,"DTS")=51197
VAR(2,"CMN")=0
VAR(2,"CON")="ABDOMINAL CRAMPS"
VAR(2,"DTS")=572
VAR(2,"EPI")=0
VAR(2,"EQM","CON")=""
VAR(2,"EQM","DTS")=""
VAR(2,"EQM","LAT")=""
VAR(2,"EQM","XADT")=""
VAR(2,"EQM","XRDT")=""
VAR(2,"FSN","DSC")="T2"
VAR(2,"FSN","TRM")="ABDOMINAL CRAMPS"
VAR(2,"FSN","XADT")=""
VAR(2,"FSN","XRDT")=""
VAR(2,"HEAL")=""
VAR(2,"LAT")=0
VAR(2,"PAS")=0
VAR(2,"PRB","DSC")="T2"
VAR(2,"PRB","TRM")="ABDOMINAL CRAMPS"
VAR(2,"STS")=""
VAR(2,"XADT")=""
VAR(2,"XRDT")=""
VAR(3,"ABN")=0
VAR(3,"ASM",1,"CON")=116289008
VAR(3,"ASM",1,"DTS")=116289
VAR(3,"CMN")=0
VAR(3,"CON")="ABDOMINAL BLOATING"
VAR(3,"DTS")=603
VAR(3,"EPI")=0
VAR(3,"EQM","CON")=""
VAR(3,"EQM","DTS")=""
VAR(3,"EQM","LAT")=""
VAR(3,"EQM","XADT")=""
VAR(3,"EQM","XRDT")=""
VAR(3,"FSN","DSC")="T33"
VAR(3,"FSN","TRM")="ABDOMINAL BLOATING"
VAR(3,"FSN","XADT")=""
VAR(3,"FSN","XRDT")=""
VAR(3,"HEAL")=""
VAR(3,"LAT")=0
VAR(3,"PAS")=0
VAR(3,"PRB","DSC")="T33"
VAR(3,"PRB","TRM")="ABDOMINAL BLOATING"
VAR(3,"STS")=""
VAR(3,"XADT")=""
VAR(3,"XRDT")=""
VAR(4,"ABN")=0
VAR(4,"ASM",1,"CON")=43364001
VAR(4,"ASM",1,"DTS")=4336
VAR(4,"CMN")=0
VAR(4,"CON")="ABDOMINAL DISCOMFORT"
VAR(4,"DTS")=960
VAR(4,"EPI")=0
VAR(4,"EQM","CON")=""
VAR(4,"EQM","DTS")=""
VAR(4,"EQM","LAT")=""
VAR(4,"EQM","XADT")=""
VAR(4,"EQM","XRDT")=""
VAR(4,"FSN","DSC")="T390"
VAR(4,"FSN","TRM")="ABDOMINAL DISCOMFORT"
VAR(4,"FSN","XRDT")=""
VAR(4,"HEAL")=""
VAR(4,"LAT")=0
VAR(4,"PAS")=0
VAR(4,"PRB","DSC")="T390"
VAR(4,"PRB","TRM")="ABDOMINAL DISCOMFORT"
VAR(4,"STS")=""
VAR(4,"XADT")=""
VAR(4,"XRDT")=""
>

Figure A-12: GMRA Signs Symptoms

The following example shows only the records returned of a GMRA Allergies with Maps namespace search:

```
>S OUT="VAR",IN="ABALONE^S^32773"
>W $SEARCH^BSTSAPI(OUT,IN)
2^
>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"AUN",1,"CON")="9V4Z7P292D"
VAR(1,"AUN",1,"DTS")=43
VAR(1,"CMN")=0
VAR(1,"CON")="ABALONE"
VAR(1,"DTS")=1
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="T1"
VAR(1,"FSN","TRM")="ABALONE"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="T1"
```
Figure A-13: GMRA Allergies with Maps

The following example shows only the records returned of an IHS VANDF namespace search:

```
> S OUT="VAR",IN="1,1,1 TRICHLOROETHANE"^S^32771"
> W $SEARCH^BSTSAPI(OUT,IN)
> ZW @OUT
VAR(1,"ABN")=0
VAR(1,"ASM",1,"CON")=26643006
VAR(1,"ASM",1,"DTS")=26643
VAR(1,"CMN")=0
VAR(1,"CON")="1,1,1 TRICHLOROETHANE"
VAR(1,"DTS")=4779
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="T4775"
VAR(1,"FSN","TRM")="1,1,1 TRICHLOROETHANE"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="T4775"
VAR(1,"PRB","TRM")="1,1,1 TRICHLOROETHANE"
VAR(1,"STS")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
```

Figure A-14: IHS VANDF namespace search

The following example shows only the records returned of an IHS Med Route namespace search:

```
> S OUT="VAR",IN="ORAL"^S^32774"
> W $SEARCH^BSTSAPI(OUT,IN)
> ZW @OUT
VAR(1,"ABN")=0
VAR(1,"ASM",1,"CON")=26643006
VAR(1,"ASM",1,"DTS")=26643
VAR(1,"CMN")=0
```
VAR(1,"CON")="ORAL"
VAR(1,"DTS")=23
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="T23"
VAR(1,"FSN","TRM")="ORAL"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="T23"
VAR(1,"PRB","TRM")="ORAL"
VAR(1,"STS")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""

Figure A-15: IHS Med Route namespace search

A.2 $$CODESETS^BSTSAPI$

The following example displays the results of a standard call to this function and shows how information can be stored in a scratch global:

```plaintext
>S OUT=$NA(^TMP("BSTSAPI",$J)),IN=""
>W $$CODESETS^BSTSAPI(OUT)
>ZW @OUT
^TMP("BSTSAPI",166128,1)=32768^32768^IHS
^TMP("BSTSAPI",166128,2)=32771^32771^IHS VANDF
^TMP("BSTSAPI",166128,3)=32772^32772^GMRA Signs Symptoms
^TMP("BSTSAPI",166128,4)=32773^32773^GMRA Allergies with Maps
^TMP("BSTSAPI",166128,5)=32774^32774^IHS Med Route
^TMP("BSTSAPI",166128,6)=32775^32775^CPT Meds with Maps
^TMP("BSTSAPI",166128,7)=32777^32777^SNOMED CT to ICD-10-CM Auto-Codeables
^TMP("BSTSAPI",166128,8)=32778^32778^SNOMED CT to ICD-9-CM Auto-Codeables
^TMP("BSTSAPI",166128,9)=32779^32779^SNOMED CT to ICD-10-CM Auto-Codeables Conditional Sequences
^TMP("BSTSAPI",166128,10)=32780^32780^IHS Problem List Equivalence Rules
^TMP("BSTSAPI",166128,11)=10^ICD-9-CM-C1^ICD-9-CM
^TMP("BSTSAPI",166128,12)=5140^ICD10CM^ICD-10-CM
^TMP("BSTSAPI",166128,13)=5102^LOINC-3^LOINC
^TMP("BSTSAPI",166128,14)=32769^N32769^IHS RxNorm Attribution
^TMP("BSTSAPI",166128,15)=1552^RXNORMR^RxNorm R
^TMP("BSTSAPI",166128,16)=35290^SCT-US-MAP_IXCD10CM^SNOMED CT US Ext to ICD-10-CM
^TMP("BSTSAPI",166128,17)=35291^SCT-US-MAP_ICD9CM^SNOMED CT US Ext to ICD-9 CM
```
A.3 $$VERSIONS^BSTSAPI

The following example displays a list of versions available for the SNOMED codeset:

```plaintext
>S OUT=$NA(^TMP("BSTSAPI",$J)),IN="36"
>W $$VERSIONS^BSTSAPI(OUT,IN)
2^  
ZW @OUT
^TMP("BSTSAPI",166128,1)="20120301^2012.03.11AB^3/1/2012^"
^TMP("BSTSAPI",166128,2)="20120901^2012.09.12AA^9/1/2012^"
^TMP("BSTSAPI",166128,3)="20130301^2013.03.12AB^3/1/2013^"
^TMP("BSTSAPI",166128,4)="20130901^2013.09.13AA^9/1/2013^"
^TMP("BSTSAPI",166128,5)="20140301^2014.03.13AB^3/1/2014^"
^TMP("BSTSAPI",166128,6)="20140901^2014.09.14AA^9/1/2014^"
^TMP("BSTSAPI",166128,7)="20150301^2015.03.15AB^3/1/2015^"
^TMP("BSTSAPI",166128,8)="20150901^2015.09.15AA^9/1/2015^"
^TMP("BSTSAPI",166128,9)="20160301^2016.03.15AB^3/1/2016^"
>
```

Figure A-17: SNOMED codeset versions

A.4 $$CVRSN^BSTSAPI

The following example returns the current version for the SNOMED codeset:

```plaintext
>S OUT="VAR",IN="36"
>W $$CVRSN^BSTSAPI(OUT,IN)
2^  
ZW @OUT
VAR="20160301^2016.03.15AB^3/1/2016^"
>
```

Figure A-18: SNOMED codeset current version

A.5 $$MPADVICE^BSTSAPI

The following example displays ICD-10 mapping information available for a particular concept ID (using a local cache lookup):

```plaintext
>S OUT="VAR",IN=2032001
```
>W \$MPADVICE^BSTSAPI(OUT,IN)
1
>ZW @OUT
VAR(1, "MPADV", "VAL")="ALWAYS G93.6"
VAR(1, "MPCVL", "VAL")="Map source concept is properly classified"
VAR(1, "MPGRP", "VAL")=1
VAR(1, "MPPRI", "VAL")=5
VAR(1, "MPRUL", "VAL")="OTHERWISE TRUE"
VAR(1, "MPTGN", "VAL")="Cerebral edema"
VAR(1, "MPTGT", "VAL")="G93.6"
VAR(2, "MPADV", "VAL")="IF CEREBRAL EDEMA DUE TO BIRTH INJURY CHOOSE P11.0 | MAP OF SOURCE CONCEPT IS CONTEXT DEPENDENT"
VAR(2, "MPCVL", "VAL")="Map of source concept is context dependent"
VAR(2, "MPGRP", "VAL")=1
VAR(2, "MPPRI", "VAL")=1
VAR(2, "MPRUL", "VAL")="IFA 206238001 | Cerebral edema due to birth injury (disorder) |
VAR(2, "MPTGN", "VAL")="Cerebral edema due to birth injury"
VAR(2, "MPTGT", "VAL")="P11.0"
VAR(3, "MPADV", "VAL")="IF TRAUMATIC CEREBRAL EDEMA WITH OPEN INTRACRANIAL WOUND CHOOSE S01.80X? | EPISODE OF CARE INFORMATION NEEDED | POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE | MAP OF SOURCE CONCEPT IS CONTEXT DEPENDENT"
VAR(3, "MPCVL", "VAL")="Map of source concept is context dependent"
VAR(3, "MPGRP", "VAL")=2
VAR(3, "MPPRI", "VAL")=1
VAR(3, "MPRUL", "VAL")="IFA 311826007 | Traumatic cerebral edema with open intracranial wound (disorder) |
VAR(3, "MPTGN", "VAL")="Unspecified open wound of other part of head, episode of care unspecified"
VAR(3, "MPTGT", "VAL")="S01.80X?"
VAR(4, "MPADV", "VAL")="IF TRAUMATIC CEREBRAL EDEMA CHOOSE S06.1X0? | CONSIDER ADDITIONAL CODE TO IDENTIFY SPECIFIC CONDITION OR DISEASE | EPISODE OF CARE INFORMATION NEEDED | POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE | MAP OF SOURCE CONCEPT IS CONTEXT DEPENDENT"
VAR(4, "MPCVL", "VAL")="Map of source concept is context dependent"
VAR(4, "MPGRP", "VAL")=1
VAR(4, "MPPRI", "VAL")=4
VAR(4, "MPRUL", "VAL")="IFA 230763008 | Traumatic cerebral edema (disorder) |
VAR(4, "MPTGN", "VAL")="Traumatic cerebral edema without loss of consciousness, episode of care unspecified"
VAR(4, "MPTGT", "VAL")="S06.1X0?"
VAR(5, "MPADV", "VAL")="IF TRAUMATIC CEREBRAL EDEMA WITH OPEN INTRACRANIAL WOUND CHOOSE S06.1X0? | EPISODE OF CARE INFORMATION NEEDED | POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE | MAP OF SOURCE CONCEPT IS CONTEXT DEPENDENT"
VAR(5, "MPCVL", "VAL")="Map of source concept is context dependent"
VAR(5, "MPGRP", "VAL")=1
VAR(5, "MPPRI", "VAL")=3
VAR(5, "MPRUL", "VAL")="IFA 311826007 | Traumatic cerebral edema with open intracranial wound (disorder) |
VAR(5, "MPTGN", "VAL")="Traumatic cerebral edema without loss of consciousness, episode of care unspecified"
VAR(5, "MPTGT", "VAL")="S06.1X0?"
VAR(6,"MPADV","VAL")="IF TRAUMATIC CEREBRAL EDEMA WITHOUT OPEN INTRACRANIAL WOUND CHOOSE S06.1X0? | EPISODE OF CARE INFORMATION NEEDED | POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE | MAP OF SOURCE CONCEPT IS CONTEXT DEPENDENT"
VAR(6,"MPCVL","VAL")="Map of source concept is context dependent"
VAR(6,"MPGRP","VAL")=1
VAR(6,"MPPRI","VAL")=2
VAR(6,"MPRUL","VAL")="IFA 311825006 | Traumatic cerebral edema without open intracranial wound (disorder) |"
VAR(6,"MPTGN","VAL")="Traumatic cerebral edema without loss of consciousness, episode of care unspecified"
VAR(6,"MPTGT","VAL")="S06.1X0?"
VAR(7,"MPADV","VAL")="MAP SOURCE CONCEPT CANNOT BE CLASSIFIED WITH AVAILABLE DATA"
VAR(7,"MPCVL","VAL")="Map source concept cannot be classified with available data"
VAR(7,"MPGRP","VAL")=2
VAR(7,"MPPRI","VAL")=2
VAR(7,"MPRUL","VAL")="OTHERWISE TRUE"
VAR(7,"MPTGN","VAL")=""
VAR(7,"MPTGT","VAL")=""
>

Figure A-19: ICD-10 mapping information

A.6 $$$SUBSET^BSTSAPI

The following example displays a list of subsets available for the SNOMED CT US Extensions codeset (using a local cache lookup):

```plaintext
>S OUT=$NA(^TMP("BSTSAPI",$J)),IN="36"
>W $$$SUBSET^BSTSAPI(OUT,IN)
1
ZW @OUT
^TMP("BSTSAPI",166128,1)="EHR EDU Admin"
^TMP("BSTSAPI",166128,2)="EHR EDU Behavioral Social"
^TMP("BSTSAPI",166128,3)="EHR EDU CQM"
^TMP("BSTSAPI",166128,4)="EHR EDU Cardiovascular"
^TMP("BSTSAPI",166128,5)="EHR EDU Child"
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IHS Standard Terminology Application Programming Interface (BSTS) Version 2.0 Patch 3

Technical Manual Sample API Calls

July 2020

156

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Figure A-20: SNOMED CT available subsets

The following example displays a list of subsets available for the SNOMED CT US Extensions codeset (using a remote DTS lookup):

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Figure A-21: SNOMED CT available subsets using DTS lookup
A.7 $$SUBLST^BSTSAPI

The following example shows the concepts found in the SRCH Preventive Care subset (using a local cache lookup):

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>ZW @OUT

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VAR(2)="266758009^397223010^Immunization contraindicated"
VAR(3)="418043000^2578952010^Advice given"
VAR(4)="171226003^265323017^Aortic aneurysm screening"
VAR(5)="397940009^1777529016^Victim of child abuse"
VAR(6)="185665008^285656016^BP screening - first call"
VAR(7)="392089008^1486075012^Breast procedure"
VAR(8)="46662001^77772014^Examination of breast"
VAR(9)="171216005^265312016^Cataract screening"
VAR(10)="274412005^410210013^Eye disorder screening"
VAR(11)="171164006^265213011^Cervical smear due"
VAR(12)="99522009^158895013^Child sex abuse"
VAR(13)="268563000^401589018^Child health medical examination"
VAR(14)="408761008^2470622012^Children's vision screening"
VAR(15)="408760009^2470621017^Vision screening"
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VAR(17)="428181000124104^635251000124110^Depression screening positive"
VAR(18)="401081006^1780286017^Diabetic peripheral neuropathy screening"
VAR(19)="394642008^1488367018^Drug screening test"
VAR(20)="460617003^2922918015^Education of caregiver"
VAR(21)="171253004^265358015^Exercise status screening"
VAR(22)="410385005^2472046011^Family planning surveillance"
VAR(23)="401212003^1774852017^Fecal screening tests"
VAR(24)="171313004^265475013^Geriatric screening"
VAR(25)="170985004^2469401019^Person counseled"
VAR(26)="81302005^134872016^Worried well"
VAR(27)="252404004^375955013^Hepatitis A antigen screening"
VAR(28)="171122006^265164019^Hepatitis B screening"
VAR(29)="310373003^453951018^Immunization advised"
VAR(30)="225060009^338241019^Lifestyle screening"
VAR(31)="170988002^2469404010^Relative counseled"
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VAR(37)="387705004^1477163017^Hemolytic disease of fetus OR newborn due to isoimmunization"
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VAR(39)="86406008^143288017^Human immunodeficiency virus infection"
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VAR(169)="191837000^295180015^Dental caries secondary to development of tooth structure"
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VAR(187)="109573000^174177019^Primary dental caries, proximal smooth surface origin"
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| VAR(278) | = | "171149006^2821322017^Screening for malignant neoplasm of cervix" |
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| VAR(299) | = | "385828006^1480020010^Health promotion management” |

Figure A-22: SRCH Preventive Care

### A.8 $\texttt{\textasciitilde VALTERM\textasciitilde BSTSAPI}$

The following example will return whether a supplied term is valid in a given code set and version (using a local cache lookup):

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>S OUT="VAR",IN="COMMON COLD"

>W $\texttt{\textasciitilde VALTERM\textasciitilde BSTSAPI}(OUT,IN)

1

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| VAR(1,"SYN",3,"DSC")=200997013 |
| VAR(1,"SYN",3,"TRM")="Head cold" |
| VAR(1,"SYN",3,"XADT")=3120301.07 |
| VAR(1,"SYN",3,"XRDT")="" |
| VAR(1,"SYN",4,"DSC")=136471015 |
| VAR(1,"SYN",4,"TRM")="Infective nasopharyngitis" |
| VAR(1,"SYN",4,"XADT")=3120301.07 |
| VAR(1,"SYN",4,"XRDT")="" |
| VAR(1,"SYN",5,"DSC")=136470019 |
| VAR(1,"SYN",5,"TRM")="Acute nasopharyngitis" |
| VAR(1,"SYN",5,"XADT")=3120301.07 |
| VAR(1,"SYN",5,"XRDT")="" |
| VAR(1,"SYN",6,"DSC")=136469015 |
| VAR(1,"SYN",6,"TRM")="Infective rhinitis" |
| VAR(1,"SYN",6,"XADT")=3120301.07 |
| VAR(1,"SYN",6,"XRDT")="" |
| VAR(1,"SYN",7,"DSC")=136468011 |
| VAR(1,"SYN",7,"TRM")="Acute rhinitis" |
| VAR(1,"SYN",7,"XADT")=3120301.07 |
| VAR(1,"SYN",7,"XRDT")="" |
| VAR(1,"SYN",8,"DSC")=136467018 |
| VAR(1,"SYN",8,"TRM")="Infective nasopharyngitis, NOS" |
| VAR(1,"SYN",8,"XADT")=3120301.07 |
| VAR(1,"SYN",8,"XRDT")="" |
| VAR(1,"SYN",9,"DSC")=136466010 |
| VAR(1,"SYN",9,"TRM")="Acute nasal catarrh" |
| VAR(1,"SYN",9,"XADT")=3120301.07 |
| VAR(1,"SYN",9,"XRDT")="" |
| VAR(1,"SYN",10,"DSC")=136465014 |
The following example will return whether a supplied term is a valid in a given code set and version (using a remote DTS server lookup):

```plaintext
>S OUT="VAR",IN="COMMON COLD"^^2
>W $$VALTERM^BSTSAPI(OUT,IN)
 2^  
>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=82272006
VAR(1,"DTS")=82272
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=823660015
VAR(1,"FSN","TRM")="Common cold (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="J00."
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=281794004
VAR(1,"ISA",1,"DTS")=281794
VAR(1,"ISA",1,"TRM")="Viral upper respiratory tract infection (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=136463019
VAR(1,"PRB","TRM")="Common cold"
VAR(1,"PRE","DSC")=136463019
VAR(1,"PRE","TRM")="Common cold"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
```

Figure A-23: Supplied terms validation
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Complementary Medicine"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="SRCH Emergency Department"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="SRCH ENT"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="SRCH Family Practice"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SUB",7,"SUB")="SRCH Medicine - Inpatient"
VAR(1,"SUB",7,"XADT")=""
VAR(1,"SUB",7,"XRDT")=""
VAR(1,"SUB",8,"SUB")="SRCH Medicine - Urgent Care"
VAR(1,"SUB",8,"XADT")=""
VAR(1,"SUB",8,"XRDT")=""
VAR(1,"SUB",9,"SUB")="SRCH Pediatrics"
VAR(1,"SUB",9,"XADT")=""
VAR(1,"SUB",9,"XRDT")=""
VAR(1,"SUB",10,"SUB")="SRCH Problem List - Medical"
VAR(1,"SUB",10,"XADT")=""
VAR(1,"SUB",10,"XRDT")=""
VAR(1,"SUB",11,"SUB")="SRCH Respiratory"
VAR(1,"SUB",11,"XADT")=""
VAR(1,"SUB",11,"XRDT")=""
VAR(1,"SUB",12,"SUB")="PICK Complimentary Medicine"
VAR(1,"SUB",12,"XADT")=""
VAR(1,"SUB",12,"XRDT")=""
VAR(1,"SUB",13,"SUB")="PICK ENT - Fractures"
VAR(1,"SUB",13,"XADT")=""
VAR(1,"SUB",13,"XRDT")=""
VAR(1,"SUB",14,"SUB")="PICK ENT - Nose and Sinus"
VAR(1,"SUB",14,"XADT")=""
VAR(1,"SUB",14,"XRDT")=""
VAR(1,"SUB",15,"SUB")="PICK Family Practice"
VAR(1,"SUB",15,"XADT")=""
VAR(1,"SUB",15,"XRDT")=""
VAR(1,"SUB",16,"SUB")="PICK Family Practice Long"
VAR(1,"SUB",16,"XADT")=""
VAR(1,"SUB",16,"XRDT")=""
VAR(1,"SUB",17,"SUB")="PICK Medicine - Inpatient"
VAR(1,"SUB",17,"XADT")=""
VAR(1,"SUB",17,"XRDT")=""
VAR(1,"SYN",1,"DSC")=504996015
VAR(1,"SYN",1,"TRM")="Cold"
VAR(1,"SYN",1,"XADT")=3120301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=504995016
VAR(1,"SYN",2,"TRM")="Acute infective rhinitis"
VAR(1,"SYN",2,"XADT")=3120301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")=200997013
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VAR(1,"SYN",3,"TRM")="Head cold"  
VAR(1,"SYN",3,"XADT")=3120301.07  
VAR(1,"SYN",3,"XRDT")=""  
VAR(1,"SYN",4,"DSC")=136471015  
VAR(1,"SYN",4,"TRM")="Infective nasopharyngitis"  
VAR(1,"SYN",4,"XADT")=3120301.07  
VAR(1,"SYN",4,"XRDT")=""  
VAR(1,"SYN",5,"DSC")=136470019  
VAR(1,"SYN",5,"TRM")="Acute nasopharyngitis"  
VAR(1,"SYN",5,"XADT")=3120301.07  
VAR(1,"SYN",5,"XRDT")=""  
VAR(1,"SYN",6,"DSC")=136469015  
VAR(1,"SYN",6,"TRM")="Infective rhinitis"  
VAR(1,"SYN",6,"XADT")=3120301.07  
VAR(1,"SYN",6,"XRDT")=""  
VAR(1,"SYN",7,"DSC")=136468011  
VAR(1,"SYN",7,"TRM")="Acute rhinitis"  
VAR(1,"SYN",7,"XADT")=3120301.07  
VAR(1,"SYN",7,"XRDT")=""  
VAR(1,"SYN",8,"DSC")=136467018  
VAR(1,"SYN",8,"TRM")="Infective nasopharyngitis, NOS"  
VAR(1,"SYN",8,"XADT")=3120301.07  
VAR(1,"SYN",8,"XRDT")=""  
VAR(1,"SYN",9,"DSC")=136466010  
VAR(1,"SYN",9,"TRM")="Acute nasal catarrh"  
VAR(1,"SYN",9,"XADT")=3120301.07  
VAR(1,"SYN",9,"XRDT")=""  
VAR(1,"SYN",10,"DSC")=136465014  
VAR(1,"SYN",10,"TRM")="Acute coryza"  
VAR(1,"SYN",10,"XADT")=3120301.07  
VAR(1,"SYN",10,"XRDT")=""  
VAR(1,"SYN",11,"DSC")=136464013  
VAR(1,"SYN",11,"TRM")="Acute nasopharyngitis, NOS"  
VAR(1,"SYN",11,"XADT")=3120301.07  
VAR(1,"SYN",11,"XRDT")=""  
VAR(1,"XADT")=3120301  
VAR(1,"XRDT")=3500101

Figure A-24: Supplied terms validation for codeset/version

The following example will return whether the given term is a valid entry in the GMRA Signs Symptoms namespace (using a local cache lookup):

```bash
>S OUT="VAR",IN="ABDOMINAL BLOATING^32772"

>W $$VALTERM^BSTSAPI (OUT, IN)
1
ZW @OUT
VAR(1,"ABN")=0
VAR(1,"ASM",1,"CON")=116289008
VAR(1,"ASM",1,"DTS")=116289
VAR(1,"CMN")=0
VAR(1,"CON")="ABDOMINAL BLOATING"
VAR(1,"DTS")=603
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
```
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="T33"
VAR(1,"FSN","TRM")="ABDOMINAL BLOATING"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="T33"
VAR(1,"PRB","TRM")="ABDOMINAL BLOATING"
VAR(1,"STS")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
>

Figure A-25: Supplied terms validation for GMRA Signs Symptoms

A.9 $$VALSBTRM^BSTSAPI

The following example will return whether a supplied term is in a particular subset (using a local cache lookup). The result is returned in a variable:

>S OUT="VAR",IN="93565019^IHS Problem List"

>W $$VALSBTRM^BSTSAPI(OUT,IN)

1
>ZW @OUT
VAR=1
>

Figure A-26: Supplied terms validation in subset

A.10 $$CNCLKP^BSTSAPI

The following example retrieves the detail for a concept when the Concept ID is provided (using a local cache listing):

>S OUT="VAR",IN="2032001"

>W $$CNCLKP^BSTSAPI(OUT,IN)

1
>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=230760006
VAR(1,"CHD",1,"DTS")=230760
VAR(1,"CHD",1,"TRM")="Cytotoxic cerebral edema (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=230762003
VAR(1,"CHD",2,"DTS")=230762
VAR(1,"CHD",2,"TRM")="High altitude cerebral edema (disorder)"
VAR(1,"CHD",2,"XADT")=""
VAR(1,"CHD",2,"XRDT")=""
VAR(1,"CHD",3,"CON")=230761005
VAR(1,"CHD",3,"DTS")=230761
VAR(1,"CHD",3,"TRM")="Periventricular cerebrospinal fluid edema (disorder)"
VAR(1,"CHD",3,"XADT")=""
VAR(1,"CHD",3,"XRDT")=""
VAR(1,"CHD",4,"CON")=230763008
VAR(1,"CHD",4,"DTS")=230763
VAR(1,"CHD",4,"TRM")="Traumatic cerebral edema (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=230759001
VAR(1,"CHD",5,"DTS")=230759
VAR(1,"CHD",5,"TRM")="Vasogenic cerebral edema (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CMN")=0
VAR(1,"CON")=2032001
VAR(1,"DTS")=2032
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=749395013
VAR(1, "FSN","TRM")="Cerebral edema (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="G93.6"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=118654009
VAR(1,"ISA",1,"DTS")=118654
VAR(1,"ISA",1,"TRM")="Disorder characterized by edema (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"ISA",2,"CON")=81308009
VAR(1,"ISA",2,"DTS")=81308
VAR(1,"ISA",2,"TRM")="Disorder of brain (disorder)"
VAR(1,"ISA",2,"XADT")=""
VAR(1,"ISA",2,"XRDT")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=4508017
VAR(1,"PRB","TRM")="Cerebral edema"
VAR(1,"PRE","DSC")=4508017
VAR(1,"PRE","TRM")="Cerebral edema"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="IHS Problem List"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Emergency Department"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="SRCH Family Practice"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="SRCH Medicine - Inpatient"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="SRCH Medicine - Urgent Care"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SUB",7,"SUB")="SRCH Neurology"
VAR(1,"SUB",7,"XADT")=""
VAR(1,"SUB",7,"XRDT")=""
VAR(1,"SUB",8,"SUB")="SRCH Problem List - Medical"
VAR(1,"SUB",8,"XADT")=""
VAR(1,"SUB",8,"XRDT")=""
VAR(1,"SUB",9,"SUB")="PICK Neurology Long"
VAR(1,"SUB",9,"XADT")=""
VAR(1,"SUB",9,"XRDT")=""
VAR(1,"SYN",1,"DSC")=480612016
VAR(1,"SYN",1,"TRM")="Cerebral oedema"
VAR(1,"SYN",1,"XADT")=3120301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=4509013
VAR(1,"SYN",2,"TRM")="Intracranial swelling"
VAR(1,"SYN",2,"XADT")=3120301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"XADT")=3120301
VAR(1,"XRDT")=3500101

Figure A-27: Concept ID detail

The following example retrieves the detail for a concept when the Concept ID is provided (using a remote DTS listing):

```
> S OUT="VAR",IN="2032001^^^2"
> W $$CNCLKP^BSTSAPI(OUT,IN) 2^ 2
> ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=230760006
VAR(1,"CHD",1,"DTS")=230760
VAR(1,"CHD",1,"TRM")="Cytotoxic cerebral edema (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=230762003
VAR(1,"CHD",2,"DTS")=230762
VAR(1,"CHD",2,"TRM")="High altitude cerebral edema (disorder)"
VAR(1,"CHD",2,"XADT")=""
```
Figure A-28: Concept ID detail using remote DTS listing

The following example retrieves the detail for a concept when the Concept ID is provided (RxNorm Codeset) (using a local cache listing):

```plaintext
>S OUT="VAR",IN="851732^1552"

>W $SCNCLKP^BSTSAPI(OUT,IN)

1

ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")=851732
VAR(1,"DTS")=11328554
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=2973307
VAR(1,"FSN","TRM")="Acacia pollen extract"
```
VAR(1, "FSN", "XADT")=""
VAR(1, "FSN", "XRDT")=""
VAR(1, "HEAL")=""
VAR(1, "LAT")=0
VAR(1, "PAS")=0
VAR(1, "PRB", "DSC")=2973307
VAR(1, "PRB", "TRM")="Acacia pollen extract"
VAR(1, "PRE", "DSC")=2973307
VAR(1, "PRE", "TRM")="Acacia pollen extract"
VAR(1, "PRE", "XRDT")=""
VAR(1, "PRE", "XADT")=""
VAR(1, "PRB")=0
VAR(1, "SUB", 1, "SUB")="RXNO SRCH Drug Ingredients All"
VAR(1, "SUB", 1, "XRDT")=""
VAR(1, "SUB", 1, "XADT")=""
VAR(1, "TTY", 1, "TTY")="IN"
VAR(1, "TTY", 1, "XRDT")=3091101.06
VAR(1, "TTY", 1, "XADT")=3500101.19
VAR(1, "XADT")=""
VAR(1, "XRDT")=""

Figure A-29: Concept ID detail using local cache listing

A.11 $$DTSLKP^BSTSAPI$$

The following example retrieves the detail for a concept when the DTS ID is provided:

```
>S OUT="VAR",IN="8801"

>W $$DTSLKP^BSTSAPI(OUT,IN)
2^>
ZW @OUT
VAR(1, "ABN")=0
VAR(1, "CHD", 1, "CON")=426705001
VAR(1, "CHD", 1, "DTS")=426705
VAR(1, "CHD", 1, "TRM")="Diabetes mellitus associated with cystic fibrosis (disorder)"
VAR(1, "CHD", 1, "XADT")=""
VAR(1, "CHD", 1, "XRDT")=""
VAR(1, "CHD", 2, "CON")=5969009
VAR(1, "CHD", 2, "DTS")=5969
VAR(1, "CHD", 2, "TRM")="Diabetes mellitus associated with genetic syndrome (disorder)"
VAR(1, "CHD", 2, "XADT")=""
VAR(1, "CHD", 2, "XRDT")=""
VAR(1, "CHD", 3, "CON")=59079001
VAR(1, "CHD", 3, "DTS")=59079
VAR(1, "CHD", 3, "TRM")="Diabetes mellitus associated with hormonal etiology (disorder)"
VAR(1, "CHD", 3, "XADT")=""
VAR(1, "CHD", 3, "XRDT")=""
VAR(1, "CHD", 4, "CON")=51002006
VAR(1, "CHD", 4, "DTS")=51002
```
VAR(1,"CHD",4,"TRM")="Diabetes mellitus associated with pancreatic disease (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=42954008
VAR(1,"CHD",5,"DTS")=42954
VAR(1,"CHD",5,"TRM")="Diabetes mellitus associated with receptor abnormality (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CHD",6,"CON")=75682002
VAR(1,"CHD",6,"DTS")=75682
VAR(1,"CHD",6,"TRM")="Diabetes mellitus caused by insulin receptor antibodies (disorder)"
VAR(1,"CHD",6,"XADT")=""
VAR(1,"CHD",6,"XRDT")=""
VAR(1,"CHD",7,"CON")=276560009
VAR(1,"CHD",7,"DTS")=276560
VAR(1,"CHD",7,"TRM")="Diabetes mellitus in neonate small for gestational age (disorder)"
VAR(1,"CHD",7,"XADT")=""
VAR(1,"CHD",7,"XRDT")=""
VAR(1,"CHD",8,"CON")=75524006
VAR(1,"CHD",8,"DTS")=75524
VAR(1,"CHD",8,"TRM")="Malnutrition related diabetes mellitus (disorder)"
VAR(1,"CHD",8,"XADT")=""
VAR(1,"CHD",8,"XRDT")=""
VAR(1,"CHD",9,"CON")=408539000
VAR(1,"CHD",9,"DTS")=408539
VAR(1,"CHD",9,"TRM")="Insulin autoimmune syndrome (disorder)"
VAR(1,"CHD",9,"XADT")=""
VAR(1,"CHD",9,"XRDT")=""
VAR(1,"CHD",10,"CON")=5368009
VAR(1,"CHD",9,"DTS")=5368
VAR(1,"CHD",10,"TRM")="Drug-induced diabetes mellitus (disorder)"
VAR(1,"CHD",10,"XADT")=""
VAR(1,"CHD",10,"XRDT")=""
VAR(1,"CHD",10,"DTS")=8801
VAR(1,"CMN")=0
VAR(1,"CON")=8801005
VAR(1,"DTS")=8801
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=830605015
VAR(1,"FSN","TRM")="Secondary diabetes mellitus (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="E13.9"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=73211009
VAR(1,"ISA",1,"DTS")=73211
VAR(1,"ISA",1,"TRM")="Diabetes mellitus (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=15518018
VAR(1,"PRB","TRM")="Secondary diabetes mellitus"
VAR(1,"PRE","DSC")=15518018
VAR(1,"PRE","TRM")="Secondary diabetes mellitus"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="SRCH Diabetes"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Pediatrics"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="PICK Urology/Nephrology Long"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="PXRN DIABETES"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SYN",1,"DSC")=1109081000119118
VAR(1,"SYN",1,"TRM")="Secondary diabetes"
VAR(1,"SYN",1,"XADT")=3140301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=1109071000119116
VAR(1,"SYN",2,"TRM")="Secondary dm"
VAR(1,"SYN",2,"XADT")=3140301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")=15519014
VAR(1,"SYN",3,"TRM")="Secondary diabetes mellitus, NOS"
VAR(1,"SYN",3,"XADT")=3120301.07
VAR(1,"SYN",3,"XRDT")=""
VAR(1,"XADT")=3120301
VAR(1,"XRDT")=3500101
>

Figure A-30: DTS ID detail
A.12 $$DSCLKP^BSTSAPI

The following example retrieves the detail for the associated concept when the Description ID for a term is provided (using a local cache lookup):

```bash
>S OUT="VAR",IN="830605015"

>W $$DSCLKP^BSTSAPI(OUT,IN)
1
>ZW @OUT

VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=426705001
VAR(1,"CHD",1,"DTS")=426705
VAR(1,"CHD",1,"TRM")="Diabetes mellitus associated with cystic fibrosis (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=5969009
VAR(1,"CHD",2,"DTS")=5969
VAR(1,"CHD",2,"TRM")="Diabetes mellitus associated with genetic syndrome (disorder)"
VAR(1,"CHD",2,"XADT")=""
VAR(1,"CHD",2,"XRDT")=""
VAR(1,"CHD",3,"CON")=59079001
VAR(1,"CHD",3,"DTS")=59079
VAR(1,"CHD",3,"TRM")="Diabetes mellitus associated with hormonal etiology (disorder)"
VAR(1,"CHD",3,"XADT")=""
VAR(1,"CHD",3,"XRDT")=""
VAR(1,"CHD",4,"CON")=51002006
VAR(1,"CHD",4,"DTS")=51002
VAR(1,"CHD",4,"TRM")="Diabetes mellitus associated with pancreatic disease (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=42954008
VAR(1,"CHD",5,"DTS")=42954
VAR(1,"CHD",5,"TRM")="Diabetes mellitus associated with receptor abnormality (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CHD",6,"CON")=75682002
VAR(1,"CHD",6,"DTS")=75682
VAR(1,"CHD",6,"TRM")="Diabetes mellitus caused by insulin receptor antibodies (disorder)"
VAR(1,"CHD",6,"XADT")=""
VAR(1,"CHD",6,"XRDT")=""
VAR(1,"CHD",7,"CON")=2765600
VAR(1,"CHD",7,"DTS")=27656009
VAR(1,"CHD",7,"TRM")="Drug-induced diabetes mellitus (disorder)"
VAR(1,"CHD",7,"XADT")=""
VAR(1,"CHD",7,"XRDT")=""
VAR(1,"CHD",8,"CON")=5368009
VAR(1,"CHD",8,"DTS")=5368
VAR(1,"CHD",8,"TRM")="Drug-induced diabetes mellitus (disorder)"
```
VAR(1,"CHD",8,"XADT")=""
VAR(1,"CHD",8,"XRDT")=""
VAR(1,"CHD",9,"CON")=408539000
VAR(1,"CHD",9,"DTS")=408539
VAR(1,"CHD",9,"TRM")="Insulin autoimmune syndrome (disorder)"
VAR(1,"CHD",9,"XADT")=""
VAR(1,"CHD",9,"XRDT")=""
VAR(1,"CHD",10,"CON")=75524006
VAR(1,"CHD",10,"DTS")=75524
VAR(1,"CHD",10,"TRM")="Malnutrition related diabetes mellitus (disorder)"
VAR(1,"CHD",10,"XADT")=""
VAR(1,"CHD",10,"XRDT")=""
VAR(1,"CHD",11,"CON")=445260006
VAR(1,"CHD",11,"DTS")=445260
VAR(1,"CHD",11,"TRM")="Posttransplant diabetes mellitus (disorder)"
VAR(1,"CHD",11,"XADT")=""
VAR(1,"CHD",11,"XRDT")=""
VAR(1,"CHD",12,"CON")=237601000
VAR(1,"CHD",12,"DTS")=237601
VAR(1,"CHD",12,"TRM")="Secondary endocrine diabetes mellitus (disorder)"
VAR(1,"CHD",12,"XADT")=""
VAR(1,"CHD",12,"XRDT")=""
VAR(1,"CMN")=0
VAR(1,"CON")=8801005
VAR(1,"DTS")=8801
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=830605015
VAR(1,"FSN","TRM")="Secondary diabetes mellitus (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="E13.9"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161031
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=73211009
VAR(1,"ISA",1,"DTS")=73211
VAR(1,"ISA",1,"TRM")="Diabetes mellitus (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=830605015
VAR(1,"PRB","TRM")="Secondary diabetes mellitus (disorder)"
VAR(1,"PRE","DSC")=15518018
VAR(1,"PRE","TRM")="Secondary diabetes mellitus"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")="Chronic"
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="SRCH Diabetes"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Pediatrics"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="PICK Urology/Nephrology Long"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="PXRM DIABETES"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SYN",1,"DSC")=1109081000119118
VAR(1,"SYN",1,"TRM")="Secondary diabetes"
VAR(1,"SYN",1,"XADT")=3140301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=1109071000119116
VAR(1,"SYN",2,"TRM")="Secondary dm"
VAR(1,"SYN",2,"XADT")=3140301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")=15519014
VAR(1,"SYN",3,"TRM")="Secondary diabetes mellitus, NOS"
VAR(1,"SYN",3,"XADT")=3120301.07
VAR(1,"SYN",3,"XRDT")=""
VAR(1,"XADT")=3120301
VAR(1,"XRDT")=3500101

Figure A-31: Description ID detail – local cache

The following example retrieves the detail for the associated concept when the Description ID for a term is provided (using a remote DTS server lookup):

```plaintext
> S OUT="VAR",IN="830605015^^2"
> W $$DSCLKP^BSTSAPI(OUT,IN) 2^2
> ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CHD",1,"CON")=426705001
VAR(1,"CHD",1,"DTS")=426705
VAR(1,"CHD",1,"TRM")="Diabetes mellitus associated with cystic fibrosis (disorder)"
VAR(1,"CHD",1,"XADT")=""
VAR(1,"CHD",1,"XRDT")=""
VAR(1,"CHD",2,"CON")=5969009
VAR(1,"CHD",2,"DTS")=5969
VAR(1,"CHD",2,"TRM")="Diabetes mellitus associated with genetic syndrome (disorder)"
VAR(1,"CHD",2,"XADT")=""
VAR(1,"CHD",2,"XRDT")=""
VAR(1,"CHD",3,"CON")=59079001
VAR(1,"CHD",3,"DTS")=59079
```
VAR(1,"CHD",3,"TRM")="Diabetes mellitus associated with hormonal etiology (disorder)"
VAR(1,"CHD",3,"XADT")=""
VAR(1,"CHD",3,"XRDT")=""
VAR(1,"CHD",4,"CON")=51002006
VAR(1,"CHD",4,"DTS")=51002
VAR(1,"CHD",4,"TRM")="Diabetes mellitus associated with pancreatic disease (disorder)"
VAR(1,"CHD",4,"XADT")=""
VAR(1,"CHD",4,"XRDT")=""
VAR(1,"CHD",5,"CON")=42954008
VAR(1,"CHD",5,"DTS")=42954
VAR(1,"CHD",5,"TRM")="Diabetes mellitus associated with receptor abnormality (disorder)"
VAR(1,"CHD",5,"XADT")=""
VAR(1,"CHD",5,"XRDT")=""
VAR(1,"CHD",6,"CON")=75682002
VAR(1,"CHD",6,"DTS")=75682
VAR(1,"CHD",6,"TRM")="Diabetes mellitus caused by insulin receptor antibodies (disorder)"
VAR(1,"CHD",6,"XADT")=""
VAR(1,"CHD",6,"XRDT")=""
VAR(1,"CHD",7,"CON")=276560009
VAR(1,"CHD",7,"DTS")=276560
VAR(1,"CHD",7,"TRM")="Diabetes mellitus in neonate small for gestational age (disorder)"
VAR(1,"CHD",7,"XADT")=""
VAR(1,"CHD",7,"XRDT")=""
VAR(1,"CHD",8,"CON")=75682002
VAR(1,"CHD",8,"DTS")=75682
VAR(1,"CHD",8,"TRM")="Diabetes mellitus caused by insulin receptor antibodies (disorder)"
VAR(1,"CHD",8,"XADT")=""
VAR(1,"CHD",8,"XRDT")=""
VAR(1,"CHD",9,"CON")=408539000
VAR(1,"CHD",9,"DTS")=408539
VAR(1,"CHD",9,"TRM")="Insulin autoimmune syndrome (disorder)"
VAR(1,"CHD",9,"XADT")=""
VAR(1,"CHD",9,"XRDT")=""
VAR(1,"CHD",10,"CON")=75524006
VAR(1,"CHD",10,"DTS")=75524
VAR(1,"CHD",10,"TRM")="Malnutrition related diabetes mellitus (disorder)"
VAR(1,"CHD",10,"XADT")=""
VAR(1,"CHD",10,"XRDT")=""
VAR(1,"CHD",11,"CON")=445260006
VAR(1,"CHD",11,"DTS")=445260
VAR(1,"CHD",11,"TRM")="Posttransplant diabetes mellitus (disorder)"
VAR(1,"CHD",11,"XADT")=""
VAR(1,"CHD",11,"XRDT")=""
VAR(1,"CHD",12,"CON")=237601000
VAR(1,"CHD",12,"DTS")=237601
VAR(1,"CHD",12,"TRM")="Secondary endocrine diabetes mellitus (disorder)"
VAR(1,"CHD",12,"XADT")=""
VAR(1,"CHD",12,"XRDT")=""
VAR(1,"CMN")=0
VAR(1,"CON")=8801005
VAR(1,"DTS")=8801
VAR(1,"EPI")=0
VAR(1,"EQM","CON")=""
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")=830605015
VAR(1,"FSN","TRM")="Secondary diabetes mellitus (disorder)"
VAR(1,"FSN","XADT")=3120301.07
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"ICD",1,"COD")="E13.9"
VAR(1,"ICD",1,"TYP")="10D"
VAR(1,"ICD",1,"XADT")=3161028
VAR(1,"ICD",1,"XRDT")=""
VAR(1,"ISA",1,"CON")=73211009
VAR(1,"ISA",1,"DTS")=73211
VAR(1,"ISA",1,"TRM")="Diabetes mellitus (disorder)"
VAR(1,"ISA",1,"XADT")=""
VAR(1,"ISA",1,"XRDT")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=1
VAR(1,"PRB","DSC")=830605015
VAR(1,"PRB","TRM")="Secondary diabetes mellitus (disorder)"
VAR(1,"PRE","DSC")=15518018
VAR(1,"PRE","TRM")="Secondary diabetes mellitus"
VAR(1,"PRE","XADT")=3120301.07
VAR(1,"PRE","XRDT")=""
VAR(1,"STS")="Chronic"
VAR(1,"SUB",1,"SUB")="IHS PROBLEM ALL SNOMED"
VAR(1,"SUB",1,"XADT")=""
VAR(1,"SUB",1,"XRDT")=""
VAR(1,"SUB",2,"SUB")="SRCH Diabetes"
VAR(1,"SUB",2,"XADT")=""
VAR(1,"SUB",2,"XRDT")=""
VAR(1,"SUB",3,"SUB")="SRCH Pediatrics"
VAR(1,"SUB",3,"XADT")=""
VAR(1,"SUB",3,"XRDT")=""
VAR(1,"SUB",4,"SUB")="EHR IPL DEFAULT STATUS CHRONIC"
VAR(1,"SUB",4,"XADT")=""
VAR(1,"SUB",4,"XRDT")=""
VAR(1,"SUB",5,"SUB")="PICK Urology/Nephrology Long"
VAR(1,"SUB",5,"XADT")=""
VAR(1,"SUB",5,"XRDT")=""
VAR(1,"SUB",6,"SUB")="PXRM DIABETES"
VAR(1,"SUB",6,"XADT")=""
VAR(1,"SUB",6,"XRDT")=""
VAR(1,"SYN",1,"DSC")=1109081000119118
VAR(1,"SYN",1,"TRM")="Secondary diabetes"
VAR(1,"SYN",1,"XADT")=3140301.07
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")=1109071000119116
VAR(1,"SYN",2,"TRM")="Secondary dm"
VAR(1,"SYN",2,"XADT")=3140301.07
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")=15519014
VAR(1,"SYN",3,"TRM")="Secondary diabetes mellitus, NOS"
VAR(1,"SYN",3,"XADT")=3120301.07
The following example retrieves the detail for the associated concept when the Description ID for a term is provided (UNII Codeset) (using a local cache lookup):

```plaintext
>S OUT="VAR",IN="5C5403N260.316825^5180"

>W $$DSCLKP^BSTSAPI(OUT,IN)
1
>ZW @OUT
VAR(1,"ABN")=0
VAR(1,"CMN")=0
VAR(1,"CON")="5C5403N260"
VAR(1,"DTS")=57
VAR(1,"EPI")=0
VAR(1,"EQM","CON")="" 
VAR(1,"EQM","DTS")=""
VAR(1,"EQM","LAT")=""
VAR(1,"EQM","XADT")=""
VAR(1,"EQM","XRDT")=""
VAR(1,"FSN","DSC")="5C5403N260.57"
VAR(1,"FSN","TRM")="ACACIA"
VAR(1,"FSN","XADT")=""
VAR(1,"FSN","XRDT")=""
VAR(1,"HEAL")=""
VAR(1,"LAT")=0
VAR(1,"PAS")=0
VAR(1,"PRB","DSC")="5C5403N260.316824"
VAR(1,"PRB","TRM")="ACACIA [VANDF]"
VAR(1,"STS")=""
VAR(1,"SYN",1,"DSC")="5C5403N260.316825"
VAR(1,"SYN",1,"TRM")="ACACIA POWDER [VANDF]"
VAR(1,"SYN",1,"XADT")=""
VAR(1,"SYN",1,"XRDT")=""
VAR(1,"SYN",2,"DSC")="5C5403N260.316824"
VAR(1,"SYN",2,"TRM")="ACACIA [VANDF]"
VAR(1,"SYN",2,"XADT")=""
VAR(1,"SYN",2,"XRDT")=""
VAR(1,"SYN",3,"DSC")="5C5403N260.316823"
VAR(1,"SYN",3,"TRM")="GUM ARABIC [VANDF]"
VAR(1,"SYN",3,"XADT")=""
VAR(1,"SYN",3,"XRDT")=""
VAR(1,"SYN",4,"DSC")="5C5403N260.316822"
VAR(1,"SYN",4,"TRM")="PLANTS AND PLANT PARTS, GUM, ACACIA OR ARABIC ACACIA SENEG AL"
VAR(1,"SYN",4,"XADT")=""
VAR(1,"SYN",4,"XRDT")=""
VAR(1,"SYN",5,"DSC")="5C5403N260.316821"
VAR(1,"SYN",5,"TRM")="ACACIA SENEGAL GUM [WHO-DD]"
VAR(1,"SYN",5,"XADT")=""
VAR(1,"SYN",5,"XRDT")=""
```
VAR(1,"SYN",5,"XRDT")=""
VAR(1,"SYN",6,"DSC")="5C5403N260.316820"
VAR(1,"SYN",6,"TRM")="ACACIA SENEGAL RESIN [WHO-DD]"
VAR(1,"SYN",6,"XADT")=""
VAR(1,"SYN",6,"XRDT")=""
VAR(1,"SYN",7,"DSC")="5C5403N260.316819"
VAR(1,"SYN",7,"TRM")="ACACIA [HSDB]"
VAR(1,"SYN",7,"XADT")=""
VAR(1,"SYN",7,"XRDT")=""
VAR(1,"SYN",8,"DSC")="5C5403N260.316818"
VAR(1,"SYN",8,"TRM")="ARABIC GUM ALLERGENIC EXTRACT"
VAR(1,"SYN",8,"XADT")=""
VAR(1,"SYN",8,"XRDT")=""
VAR(1,"SYN",9,"DSC")="5C5403N260.316817"
VAR(1,"SYN",9,"TRM")="ALLERGENIC EXTRACT- GUM, ACACIA OR ARABIC ACACIA SENEGAL"
VAR(1,"SYN",9,"XADT")=""
VAR(1,"SYN",9,"XRDT")=""
VAR(1,"SYN",10,"DSC")="5C5403N260.316816"
VAR(1,"SYN",10,"TRM")="AE-GUM, ACACIA"
VAR(1,"SYN",10,"XADT")=""
VAR(1,"SYN",10,"XRDT")=""
VAR(1,"SYN",11,"DSC")="5C5403N260.316815"
VAR(1,"SYN",11,"TRM")="AE-GUM, ARABIC"
VAR(1,"SYN",11,"XADT")=""
VAR(1,"SYN",11,"XRDT")=""
VAR(1,"SYN",12,"DSC")="5C5403N260.165026"
VAR(1,"SYN",12,"TRM")="ACACIA [II]"
VAR(1,"SYN",12,"XADT")=""
VAR(1,"SYN",12,"XRDT")=""
VAR(1,"SYN",13,"DSC")="5C5403N260.165025"
VAR(1,"SYN",13,"TRM")="ACACIA MUCILAGE [II]"
VAR(1,"SYN",13,"XADT")=""
VAR(1,"SYN",13,"XRDT")=""
VAR(1,"SYN",14,"DSC")="5C5403N260.165024"
VAR(1,"SYN",14,"TRM")="GUM ARABIC [FCC]"
VAR(1,"SYN",14,"XADT")=""
VAR(1,"SYN",14,"XRDT")=""
VAR(1,"SYN",15,"DSC")="5C5403N260.165023"
VAR(1,"SYN",15,"TRM")="ACACIA [MI]"
VAR(1,"SYN",15,"XADT")=""
VAR(1,"SYN",15,"XRDT")=""
VAR(1,"SYN",16,"DSC")="5C5403N260.165022"
VAR(1,"SYN",16,"TRM")="ACACIA [MART.]"
VAR(1,"SYN",16,"XADT")=""
VAR(1,"SYN",16,"XRDT")=""
VAR(1,"SYN",17,"DSC")="5C5403N260.165021"
VAR(1,"SYN",17,"TRM")="ACACIA SENEGAL GUM [INCI]"
VAR(1,"SYN",17,"XADT")=""
VAR(1,"SYN",17,"XRDT")=""
VAR(1,"SYN",18,"DSC")="5C5403N260.165020"
VAR(1,"SYN",18,"TRM")="ACACIA SENEGAL GUM EXTRACT [INCI]"
VAR(1,"SYN",18,"XADT")=""
VAR(1,"SYN",18,"XRDT")=""
VAR(1,"SYN",19,"DSC")="5C5403N260.165019"
VAR(1,"SYN",19,"TRM")="ACACIA SENEGAL GUM"
VAR(1,"SYN",19,"XADT")=""
VAR(1,"SYN",19,"XRDT")=""
VAR(1,"SYN",20,"DSC")="5C5403N260.87154"
VAR(1,"SYN",20,"TRM")="ARABIC GUM"
VAR(1,"SYN",20,"XADT")=""
VAR(1,"SYN",20,"XRDT")=""
VAR(1,"SYN",21,"DSC")="5C5403N260.87153"
VAR(1,"SYN",21,"TRM")="ACACIA, SPRAY-DRIED [EP]"
VAR(1,"SYN",21,"XADT")=""
VAR(1,"SYN",21,"XRDT")=""
VAR(1,"SYN",22,"DSC")="5C5403N260.87152"
VAR(1,"SYN",22,"TRM")="ACACIA, SPRAY-DRIED"
VAR(1,"SYN",22,"XADT")=""
VAR(1,"SYN",22,"XRDT")=""
VAR(1,"SYN",23,"DSC")="5C5403N260.87151"
VAR(1,"SYN",23,"TRM")="ACACIA GUM [FHFI]"
VAR(1,"SYN",23,"XADT")=""
VAR(1,"SYN",23,"XRDT")=""
VAR(1,"SYN",24,"DSC")="5C5403N260.87150"
VAR(1,"SYN",24,"TRM")="ACACIA ARABICA [HPUS]"
VAR(1,"SYN",24,"XADT")=""
VAR(1,"SYN",24,"XRDT")=""
VAR(1,"SYN",25,"DSC")="5C5403N260.87149"
VAR(1,"SYN",25,"TRM")="ACACIA SENEAL GUM EXTRACT"
VAR(1,"SYN",25,"XADT")=""
VAR(1,"SYN",25,"XRDT")=""
VAR(1,"SYN",26,"DSC")="5C5403N260.87148"
VAR(1,"SYN",26,"TRM")="ACACIA POWDER"
VAR(1,"SYN",26,"XADT")=""
VAR(1,"SYN",26,"XRDT")=""
VAR(1,"SYN",27,"DSC")="5C5403N26O.21204"
VAR(1,"SYN",27,"TRM")="THORNY ACACIA RESIN"
VAR(1,"SYN",27,"XADT")=""
VAR(1,"SYN",27,"XRDT")=""
VAR(1,"SYN",28,"DSC")="5C5403N260.21203"
VAR(1,"SYN",28,"TRM")="SENEGALIA SENEAL RESIN"
VAR(1,"SYN",28,"XADT")=""
VAR(1,"SYN",28,"XRDT")=""
VAR(1,"SYN",29,"DSC")="5C5403N260.21202"
VAR(1,"SYN",29,"TRM")="SENEGAL GUM"
VAR(1,"SYN",29,"XADT")=""
VAR(1,"SYN",29,"XRDT")=""
VAR(1,"SYN",30,"DSC")="5C5403N260.21201"
VAR(1,"SYN",30,"TRM")="RFAUDRAKSHA RESIN"
VAR(1,"SYN",30,"XADT")=""
VAR(1,"SYN",30,"XRDT")=""
VAR(1,"SYN",31,"DSC")="5C5403N260.21200"
VAR(1,"SYN",31,"TRM")="MIMOSA SENEAL RESIN"
VAR(1,"SYN",31,"XADT")=""
VAR(1,"SYN",31,"XRDT")=""
VAR(1,"SYN",32,"DSC")="5C5403N260.21199"
VAR(1,"SYN",32,"TRM")="KHER RESIN"
VAR(1,"SYN",32,"XADT")=""
VAR(1,"SYN",32,"XRDT")=""
VAR(1,"SYN",33,"DSC")="5C5403N260.21198"
VAR(1,"SYN",33,"TRM")="GUMMI ARABICUM"
VAR(1,"SYN",33,"XADT")=""
VAR(1,"SYN",33,"XRDT")=""
VAR(1,"SYN",34,"DSC")="5C5403N26O.21197"
VAR(1,"SYN",34,"TRM")="GUM SENEGAL"
VAR(1,"SYN",34,"XADT")=""
VAR(1,"SYN",34,"XRDT")=""
VAR(1,"SYN",35,"DSC")="5C5403N26O.21196"
VAR(1,"SYN",35,"TRM")="ACACIAE GUMMI"
VAR(1,"SYN",35,"XADT")=""
VAR(1,"SYN",35,"XRDT")=""
VAR(1,"SYN",36,"DSC")="5C5403N26O.21195"
VAR(1,"SYN",36,"TRM")="ACACIAE GUMMI"
VAR(1,"SYN",36,"XADT")=""
VAR(1,"SYN",36,”XRDT")=""
VAR(1,”SYN”,37,”DSC”)="5C5403N26O.21194"
VAR(1,”SYN”,37,”TRM”)="ACACIAE SPINOSA RESIN"
VAR(1,”SYN”,37,”XADT”)=""
VAR(1,”SYN”,37,”XRDT”)=""
VAR(1,”SYN”,38,”DSC”)="5C5403N26O.21193"
VAR(1,”SYN”,38,”TRM”)="ACACIAE RUPESTRIS RESIN"
VAR(1,”SYN”,38,”XADT”)=""
VAR(1,”SYN”,38,”XRDT”)=""
VAR(1,”SYN”,39,”DSC”)="5C5403N26O.21192"
VAR(1,”SYN”,39,”TRM”)="ACACIAE OXYOSPRION RESIN"
VAR(1,”SYN”,39,”XADT”)=""
VAR(1,”SYN”,39,”XRDT”)=""
VAR(1,”SYN”,40,”DSC”)="5C5403N26O.21191"
VAR(1,”SYN”,40,”TRM”)="ACACIAE MUCILAGE"
VAR(1,”SYN”,40,”XADT”)=""
VAR(1,”SYN”,40,”XRDT”)=""
VAR(1,”SYN”,41,”DSC”)="5C5403N26O.21190"
VAR(1,”SYN”,41,”TRM”)="ACACIAE CUFODONTII RESIN"
VAR(1,”SYN”,41,”XADT”)=""
VAR(1,”SYN”,41,”XRDT”)=""
VAR(1,”SYN”,42,”DSC”)="5C5403N26O.21189"
VAR(1,”SYN”,42,”TRM”)="ACACIAE CIRCUMMARGINATA RESIN"
VAR(1,”SYN”,42,”XADT”)=""
VAR(1,”SYN”,42,”XRDT”)=""
VAR(1,”SYN”,43,”DSC”)="5C5403N26O.21188"
VAR(1,”SYN”,43,”TRM”)="ACACIAE ARABICA"
VAR(1,”SYN”,43,”XADT”)=""
VAR(1,”SYN”,43,”XRDT”)=""
VAR(1,”SYN”,44,”DSC”)="5C5403N26O.8759"
VAR(1,”SYN”,44,”TRM”)="GUM ARABIC"
VAR(1,”SYN”,44,”XADT”)=""
VAR(1,”SYN”,44,”XRDT”)=""
VAR(1,”SYN”,45,”DSC”)="5C5403N26O.8758"
VAR(1,”SYN”,45,”TRM”)="GUM ACACIA"
VAR(1,”SYN”,45,”XADT”)=""
VAR(1,”SYN”,45,”XRDT”)=""
VAR(1,”SYN”,46,”DSC”)="5C5403N26O.8757"
VAR(1,”SYN”,46,”TRM”)="ACACIAE VEREK RESIN"
VAR(1,”SYN”,46,”XADT”)=""
VAR(1,”SYN”,46,”XRDT”)=""
VAR(1,”SYN”,47,”DSC”)="5C5403N26O.8756"
VAR(1,”SYN”,47,”TRM”)="ACACIAE SENEGAL RESIN"
VAR(1,”SYN”,47,”XADT”)=""
VAR(1,”SYN”,47,”XRDT”)=""
VAR(1,"SYN",48,"TRM")="ACACIA GUM"
VAR(1,"SYN",48,"XADT")=""
VAR(1,"SYN",48,"XRDT")=""
VAR(1,"XADT")=""
VAR(1,"XRDT")=""
>

Figure A-33: Description ID detail – UNII codeset

A.13 $$CONC^BSTSAPI

The following example shows a sample $$CONC API call:

>W $$CONC^BSTSAPI(314903002)
711739010^Type II diabetes mellitus with arthropathy
(diorder)^459310018^Type 2
diabetes mellitus with arthropathy^E11.618^^0^0^Chronic^^
>

Figure A-34: Sample $$CONC API call 1

The following example shows a sample $$CONC API call with no mapping parameters passed in:

>W $$CONC^BSTSAPI(48466003)
786037010^Fracture of vault of skull (disorder)^80749019^Fracture of vault of sk
ull^ZZZ.999^^0^0^^RDN^Delayed|28087009;NL Union|717128007;Nonunion|33080003
>

Figure A-35: Sample $$CONC API call 2

The following example shows the same $$CONC API call, this time with mapping parameter information passed in (which cause the ICD mapping that gets returned to change):

>W $$CONC^BSTSAPI("48466003^^^^^EPI=303350001;HEAL=Delayed")
786037010^Fracture of vault of skull (disorder)^80749019^Fracture of vault of sk
ull^S02.0XXD^^0^0^^RDN^Delayed|28087009;NL Union|717128007;Nonunion|33080003
>

Figure A-36: Sample $$CONC API call 3

A.14 $$DESC^BSTSAPI

The following example shows a sample $$DESC call with no mapping parameters passed in:

>W $$DESC^BSTSAPI(80749019)
48466003^Fracture of vault of skull^ZZZ.999^^0^0^^RDN^Delayed|28087009;NL Union|717128007;Nonunion|33080003
Figure A-37: Description ID detail – no mapping parameters passed in

The following example shows the same $$DESC call, this time with mapping information passed in:

```
>W $$DESC^BSTSAPI("80749019^^^^^EPI=303350001;HEAL=Delayed")
48466003^Fracture of vault of skull^S02.0XXD^^0^0^^RDN^Delayed|28087009;NL
Union
|717128007;Nonunion|33080003
>
```

Figure A-38: Description ID detail – no mapping parameters passed in

A.15 $$VSBTRMF^BSTSAPI

The following example will return whether a supplied term is in a particular subset (using a local cache lookup). The result is returned as the returned value of the function call:

```
>S OUT="VAR",IN="93565019^IHS Problem List"
>W $$VSBTRMF^BSTSAPI(IN)
1
>
```

Figure A-39: Supplied terms validation in subset – function call

A.16 $$DILKP^BSTSAPI

The following example shows how to look up the RxNorm for a given NDC number (using a local cache lookup):

```
>S OUT="VAR",IN="00713011850^N"
>W $$DILKP^BSTSAPI(OUT,IN)
1
>ZW @OUT
VAR(1,"RXN","CON")=209352
VAR(1,"RXN","TDC")=198434
VAR(1,"RXN","TDT")="Acetaminophen 120 MG Rectal Suppository [198434]"
VAR(1,"RXN","TRM")="Acetaminophen 120 MG Rectal Suppository [Acephen]"
VAR(1,"RXN","TTY")="SBD"
>
```

Figure A-40: ICD2SMD API call
The following example shows how to look up the RxNorm for a given NDC number (using a remote DTS lookup):

```
> $ OUT="VAR", IN="00713011850^N^2"
> $DILKP^BSTSAPI(OUT, IN)
> ZW @OUT
VAR(1,"RXN", "CON")=209352
VAR(1,"RXN", "TDC")=198434
VAR(1,"RXN", "TDT")="Acetaminophen 120 MG Rectal Suppository [198434]"
VAR(1,"RXN", "TRM")="Acetaminophen 120 MG Rectal Suppository [Acephen]"
VAR(1,"RXN", "TTY")="SBD"
```

Figure A-41: RxNorm for an NDC Number

The following example shows how to look up the RxNorm for a given VUID number (using a local cache lookup):

```
> $ OUT="VAR", IN="4000734^V"
> $DILKP^BSTSAPI(OUT, IN)
> ZW @OUT
VAR(1,"RXN", "CON")=702519
VAR(1,"RXN", "TDC")=""
VAR(1,"RXN", "TDT")=""
VAR(1,"RXN", "TRM")="Phenobarbital 4 MG/ML Oral Solution"
VAR(1,"RXN", "TTY")="SCD"
```

Figure A-42: RxNorm for a VUID Number

A.17 $$ASSOC^BSTSAPI

The following example shows how to display any associations for a given term. In this case, it is looking up the SNOMED CT information for a given GMRA Signs Symptoms entry (using a local cache lookup):

```
> $ ASSOC^BSTSAPI("ABDOMINAL BLOATING^32772")
116289008^^
```

Figure A-43: SNOMED CT for GMRA Signs Symptoms – local cache

The following example shows the same call but instead of looking in local cache, it is doing a remote DTS lookup:

```
> $ ASSOC^BSTSAPI("ABDOMINAL BLOATING^32772^2")
116289008^^
```
>W $$ASSOC^BSTSAPI("ORAL^32774")
26643006^^
>

Figure A-44: SNOMED CT for GMRA Signs Symptoms – remote DTS lookup

In this case, it is looking up the SNOMED CT information for a given IHS Med Route entry (using a local cache lookup):

A.18 $$DI2RX^BSTSAPI

The following example shows how to display the first RxNorm mapping for a particular NDC value (using a local cache lookup):

>S IN="00713011850^N"

>W $$DI2RX^BSTSAPI(IN)
209352^Acetaminophen 120 MG Rectal Suppository
 [Acephen]^198434^Acetaminophen 120 MG Rectal Suppository [198434]^SBD
>

Figure A-45: SNOMED CT for IHS Med Routine

Figure A-46: RxNorm mapping for NDC value

A.19 $$I10ADV^BSTSAPI

The following example shows how formatted ICD-10 mapping advice can be returned for a sample Concept Id (using a local cache lookup):

>S OUT="VAR",IN=2032001

>W $$I10ADV^BSTSAPI(OUT,IN)
1
ZW @OUT
VAR(1)="Rule #1  Target Code: G93.6"
VAR(2)="ALWAYS G93.6"
VAR(3)="
VAR(4)="Rule #2  Target Code: P11.0"
VAR(5)="IF CEREBRAL EDEMA DUE TO BIRTH INJURY CHOOSE P11.0"
VAR(6)="
VAR(7)="Rule #3  Target Code: S01.80X?"
VAR(8)="IF TRAUMATIC CEREBRAL EDEMA WITH OPEN INTRACRANIAL WOUND CHOOSE S01.80X?"
VAR(9)="EPISODE OF CARE INFORMATION NEEDED"
VAR(10)="POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE"
VAR(11)="
VAR(12)="Rule #4  Target Code: S06.1X0?"
VAR(13)="IF TRAUMATIC CEREBRAL EDEMA CHOOSE S06.1X0?"
VAR(14)="CONSIDER ADDITIONAL CODE TO IDENTIFY SPECIFIC CONDITION OR DISEASE"
VAR(15)="EPISODE OF CARE INFORMATION NEEDED"
VAR(16)="POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE"
VAR(17)= " 
VAR(18)="Rule #5  Target Code: S06.1X0?"
VAR(19)="IF TRAUMATIC CEREBRAL EDEMA WITH OPEN INTRACRANIAL WOUND CHOOSE
S06.1X0?"
VAR(20)="EPISODE OF CARE INFORMATION NEEDED"
VAR(21)="POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE"
VAR(22)= " 
VAR(23)="Rule #6  Target Code: S06.1X0?"
VAR(24)="IF TRAUMATIC CEREBRAL EDEMA WITHOUT OPEN INTRACRANIAL WOUND CHOOSE
S06.1X0?"
VAR(25)="EPISODE OF CARE INFORMATION NEEDED"
VAR(26)="POSSIBLE REQUIREMENT FOR AN EXTERNAL CAUSE CODE"
VAR(27)= " 
VAR(28)="Rule #7  Target Code: N/A"
VAR(29)="MAP SOURCE CONCEPT CANNOT BE CLASSIFIED WITH AVAILABLE DATA"

Figure A-47: ICD-10 mapping advice for a sample Concept Id

### A.20 EQUIV^BSTSAPI

The following example shows equivalent concepts with laterality can be returned for a sample Concept Id (using a local cache lookup). In this example ‘Acute otitis media’ with a laterality of Left is passed in. Returned is an exact match on it and ‘Acute left otitis media’ and a related match on ‘Acute otitis media’:

```plaintext
>D EQUIV^BSTSAPI("VAR","3110003^272741003|7771000")

>ZW VAR

VAR(1)="3110003^272741003|7771000^1^1"
VAR(2)="3110003^^0^"
VAR(3)="194288009^^1^"
```

Figure A-48: Lateralized equivalent concepts for a sample Concept Id

In this example, ‘Acute otitis media’ with no laterality is passed in. Returned is an exact match on the passed in concept as well as related matches on ‘Acute bilateral otitis media’, ‘Acute otitis media, bilateral’, ‘Acute left otitis media’, ‘Acute otitis media, left’, ‘Acute right otitis media’ and ‘Acute otitis media, right’:

```plaintext
>D EQUIV^BSTSAPI("VAR","3110003^")

>ZW VAR

VAR(1)="3110003^^1^0"
VAR(2)="194290005^^0^"
VAR(3)="3110003^272741003|51440002^0"
VAR(4)="194288009^^0^"
VAR(5)="3110003^272741003|7771000^0"
VAR(6)="194289001^^0^"
VAR(7)="3110003^272741003|24028007^0"
```
Figure A-49: Lateralized equivalent concepts for a sample concept Id

In this example ‘Acute left otitis media’ is passed in. Returned is an exact match on it and ‘Acute otitis media, left’ and a related match on ‘Acute otitis media’:

```
>D EQUIV^BSTSAPI("VAR","194288009")
>ZW VAR
VAR(1)="194288009^^1^1"
VAR(2)="3110003^272741003|7771000^1^"
VAR(3)="3110003^^0^"
```

Figure A-50: Lateralized equivalent concepts for a sample concept Id

A.21 RCONC^BSTSAPI

The following example shows an exact replacement match for a passed in retired concept:

```
>D RCONC^BSTSAPI(495003,36,.RET)
>ZW RET
RET="715052003^Disease caused by Capripoxvirus^3301304017^R"
```

Figure A-51: Exact replacement match for a passed in retired concept

A.22 RTERM^BSTSAPI

The following example shows an exact (or possible) replacement matching term (or terms) and concept (or concepts) for a passed in retired term:

```
>D RTERM^BSTSAPI(1908012,36,.RET)
>ZW RET
RET="3301304017^Disease caused by Capripoxvirus^715052003"
```

Figure A-52: Exact (or possible) replacement matching term and concept for a passed in retired term

A.23 $$CVPARM^BSTSMAP1

The following example shows how the desired display term (and not the preferred term) of a concept can be determined. In this case, rather than displaying ‘Right and left for 51440002, the desired term of ‘Bilateral’ is returned:
Figure A-53: Desired term display
Glossary

**Electronic Health Record**
An application used by medical organizations to track patient medical records and care.

**ICD Codes**
One of several code sets used by the healthcare industry to standardize data. The International Classification of Disease (ICD) codes are an international diagnostic coding scheme. In addition to diseases, ICD also includes several families of terms for medical-specialty diagnoses, health status, disablements, procedures, and reasons for contact with HCPs. IHS currently used ICD-9 for coding through September 30, 2015 and transitioned to using ICD-10 on October 1, 2015.

**Office of Information Technology**
The organization within IHS that is responsible for developing and maintaining RPMS and related IT functions.

**Resource and Patient Management System**
A series of integrated software components that includes clinical, administrative, and financial functions.
# Acronym List

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Term Definition</th>
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<tbody>
<tr>
<td>API</td>
<td>Application Programming Interface</td>
</tr>
<tr>
<td>dll</td>
<td>Dynamic Linked Library</td>
</tr>
<tr>
<td>DTS</td>
<td>Distributed Terminology System</td>
</tr>
<tr>
<td>EHR</td>
<td>Electronic Health Record</td>
</tr>
<tr>
<td>ICD</td>
<td>International Classification of Diseases</td>
</tr>
<tr>
<td>IHS</td>
<td>Indian Health Service</td>
</tr>
<tr>
<td>KIDS</td>
<td>Kernel Installation and Distribution System</td>
</tr>
<tr>
<td>NDC</td>
<td>National Drug Code</td>
</tr>
<tr>
<td>OS</td>
<td>Operating System</td>
</tr>
<tr>
<td>RPC</td>
<td>Remote Procedure Call</td>
</tr>
<tr>
<td>RPMS</td>
<td>Resource and Patient Management System</td>
</tr>
<tr>
<td>SAC</td>
<td>Standards and Conventions</td>
</tr>
<tr>
<td>SNOMED CT</td>
<td>Systematized Nomenclature of Medicine-Clinical Terms</td>
</tr>
<tr>
<td>UI</td>
<td>User Interface</td>
</tr>
<tr>
<td>UNII</td>
<td>Unique Ingredient Identifier</td>
</tr>
<tr>
<td>VUID</td>
<td>VA Unique Identifier</td>
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<tr>
<td>XML</td>
<td>Extensible Markup Language</td>
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