Lexicon Utility

Technical Manual and Developer’s Guide

Version 2.0
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Department of Veterans Affairs (VA)
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Revision History

Date	Description of Change	Author
09/24/2003	LEX*2.0*25 CSV changes: pp. 7, 15-16, 22, 24-25, 28-33, 35, 38, 46, 52, 64-69	N/A
06/12/2008	LEX*2.0*41 Changes related to the implementation of SNOMED CT codes in the Lexicon for the Lab Data Sharing Interoperability (LDSI) project.	Ferdinand Frankson, Kathleen Barnett
05/06/2009	LEX*2.0*62 Changes designed to implement advanced date testing.	Kimball Rowe, Michelle Dilley, Kathleen Barnett
09/22/2010	Existing Tech Manual into new template, edit, format. Added changes for LEX*2.0*73.	Kimball Rowe, Ruth Gong, Peri Koester
11/05/2012	LEX*2.0*58 Added new protocol and routine	Thomas Hackett
04/02/2014	Tech Writer Review-edited for grammar, TOC, etc.	Kimberlee Mann
04/21/2014	Added changes for LEX*2.0*80 (ICD-10)	Kimball Rowe
04/24/2014	Tech Writer Review	Kimberlee Mann
12/19/2014	Added changes for $$CODE^LEXTRAN and $$GETSYN^LEXTRAN1 for LEX*2.0*86	Kimball Rowe
02/22/2016	LEX*2.0*102 HCUM Files, APIs and ICRs	Paterick Redington
05/23/2017	LEX*2.0*103 changes for Index Repair, Special Lookup, added APIs, Keyword Utility, Case Utility (Tokens) and update pointer relationship graphic	Kimball Rowe

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1. Preface

1.1 Scope of Manual

This manual provides technical information required to effectively set up and use the Veterans Health Information Systems and Technology Architecture (VistA) Lexicon Utility. It also contains material useful in linking to the Lexicon Utility.

1.2 Audience

This manual's intended audience is Information Resource Management (IRM) personnel, Applications Coordinators (ADPACs), Clinical Coordinators, and developers.

2. Introduction

VistA's Lexicon Utility is a dynamic dictionary of medical terms. The Lexicon maps coding schemes such as ICD-10, SNOMED CT, and DSM to major medical concepts. Currently, there are 36 different coding schemes represented in the Lexicon. The Lexicon Utility can support other coding schemes that are unique to the VA, such as the codes used by the Social Work Service or US Code Title 38 Chapter 4 for Service Connected Disabilities.

Working with outside sources, the Lexicon updates its terminology as the source files incorporate new terminologies and classification codes. The flexibility offered by this approach is tremendous. The Lexicon can draw from sources such as CMS, AMA and APA while maintaining compatibility with VA authoritative files. The Lexicon adjusts new terminology for use in the VA while retaining backward compatibility with older coding schemes (for example, transition from DSM-IIIR to DSM-IV). Updates to the Lexicon are exported on a periodic basis.

The Lexicon supports usage by all clinical areas. With the mapping of application-specific term files, such as radiology, medicine, etc., to the Lexicon, Veterans Health Administration (VHA) achieves standardized clinical terminology. Terminology associated with Hybrid Open System Technology (HOST) applications can also be mapped to the Lexicon. This standardization on the part of VistA and HOST applications permits information mobility within VHA and with other industry-wide systems.

A specially designed interface permits the user to enter a medical term using familiar natural language. The computer codifies and stores this term, permitting retrieval and analysis by a wide variety of legitimate users of clinical data. This interface captures exactly what the user enters and maps it to a standardized term that is linked to a major concept. An application using the Lexicon can reflect what the user actually entered while maintaining the links to the needed coding system and the Lexicon.

The Lexicon's initial implementation was with the Problem List Application Version 1.0. It was completed on September 6, 1994 and released to the field on January 28, 1995.

The initial release of the utility was conceived and planned as a proof of concept. While not complete, the design of the Lexicon includes the ability to evolve as new demands are placed upon it.

3. Clinical Lexicon Version 1.0 (GMPT)

The following software requirements have been stated for the Lexicon Utility:

3.1 Problem List Expert Panel

- Single unique concepts
- Must support natural/native terminology
- All terms must map to ICD-9 (rescinded)

- Must specifically include problem list terminology from NANDA, Social Work, and Dental, as well as clinical findings and symptoms or other terminologies (to be identified)
- Must be flexible enough to map various coding schemes (examples follow)

Coding System	Name (Development Organization)
ACR	Index for Radiological Diagnosis (ACR)
AI/RHEUM	Disease/Findings Knowledge Base (NLM)
BIRADS	Breast Imaging Reporting and Data System (ACR)
COSTAR	Computer Stored Ambulatory Records, MA General Hospital
COSTART	Coding Symbols Thesaurus for Adverse Reaction Terms (FDA)
CPT-4	Current Procedural Terminology (AMA)
CRISP	Computer Retrieval of Info. on Scientific Projects (NIH)
DMIS ID	Defense Medical Information System Identifiers (DoD)
DSM	Diagnostic & Statistical Manual of Mental Disorders (APA)
DXPLAIN	Diagnostic Prompting System, MA General Hospital
HCPCS	HCFA Current Procedural Coding System (CMS)
HHCC	Home Health Care Component
ICD-10-CM	International Classification of Diseases Diagnosis (CMS)
ICD-10-PCS	International Classification of Diseases Procedures (CMS)
ICD-9-CM	International Classification of Diseases Diagnosis (CMS)
LOINC	Logical Observation Identifier Names and Codes (RII)
NANDA	Classification of Nursing Diagnosis (NANDA)
NIC	Nursing Intervention Classifications
NOC	Nursing Outcomes Classifications
OMAHA	Omaha Nursing Diagnosis and Interventions
SCC	Service Connected, US Code Title 38, Chapter 4
SNOMED	Systematized Nomenclature of Medicine (CAP)
SNOMED CT	Systemized Nomenclature of Medicine Clinical Terms (IHTSDO)
UMDNS	Universal Medical Device Nomenclature System (ECRI)

- Must be usable by a variety of applications and utilities within VistA
- Must support addition of terms at the site level (rescinded)
- Must be able to migrate to a nomenclature selected for use throughout VistA when that decision occurs
- Site modification to include edit display text (rescinded) and site specific shortcuts and synonyms (MTLU for v1.0, context sensitive shortcuts for v2.0)

3.2 End User Requirements

- Group terms by clinical categories (e.g., ICD-9 Major Clinical Categories)
- Place the most frequently used terms at the top of the selection list
- Accept the provider narrative if the search fails or the term was not found
- Build subsets of terms (based on specialty or clinic) restricting the lookup domain

3.3 Application Requirements

- Provide Silent Lookup using a multi-term search (CPRS)
- Build shortcuts for terms (based on specialty or clinic) gaining immediate access to terms without the benefit of a search (PL)
- Provide shortcut as a user default (PL)
- Add CPT terminology and codes to the Lexicon Utility (multiple applications)
- Provide entry point to retrieve an internal entry number based on a code from a classification system (PCE)

4. Lexicon Version 2.0 (LEX)

Terminology **Added**

Terminology added since v1.0:

- Current Procedural Terminology (CPT-4)
- Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)
- International Classification of Diseases (ICD-10-CM and ICD-10-PCS)
- Systemized Nomenclature of Medicine Clinical Terms (SNOMED CT)
- Defense Medical Information System Identifiers (DMIS ID)
- Service Connected, US Code, Title 38, Chapter 4 (updated)
- Breast Imaging Reporting and Data System (BIRADS)

Namespace LEX **Changed**

We changed the namespace from GMPT to LEX. We renamed all routines and package variables from GMPT* to LEX* to conform to the new namespace.

Global Root ^LEX **Changed**

We changed the global root from ^GMP and ^GMPT to ^LEX and ^LEXT respectively. This helps to prevent inadvertent deletion of Lexicon data. The difference between killing ^TMP and ^GMP is one character on a standard QWERTY keyboard, both controlled by the same finger and located approximately a quarter of an inch from each other.

Shortcut Functionality **Added**
The Expression Type field (#757.01) has been changed from a set of codes to a pointer to the new file Expression Type, #757.011.

Concept Usage File #757.001 **Added**
The Concept Usage file records the usage of Lexicon by application performing lookups using the Special Lookup Routines. This file later determines the order of the selection list during lookup. The more frequently used terms float to the top of the list.

Expression Type File #757.011 **Added**
The Expression Type field (#757.01) has been changed from a set of codes to a pointer to the new file Expression Type, #757.011.

Mapping Definitions File #757.31 **Added**
This file is used to define a mapping from one coding system (source code) to another coding system (target code). The coding systems are found in the Coding Systems file #757.03.

Mappings File #757.32 **Added**
This file contains the mappings from one coding system to another coding system. Selection of a term or a code from one coding system can be translated to another coding system.

Codes File #757.02 **Changed**
The Codes file was modified to include a status multiple to record code activation dates and inactivation dates. The ACT cross-reference is generated from this multiple. This cross reference provides the Lexicon the ability to retrieve the appropriate code and text based on a date supplied by the calling routine. If a date is not supplied, then TODAY is used.

Coding Systems File #757.03 **Changed**
The Coding Systems file was modified by making the SOURCE TITLE field #2 an identifier for the purpose of lookup while editing the Change File #757.01. The IMPLEMENTATION DATE field #11 was added to document the implementation of each Coding System.

Character Positions File #757.033 **Added**
This file stores the name/title, description, explanation, and inclusions/examples of a character position in a code.

Subset Definition file #757.2 **Changed**
The DIC("S") value used by various applications and stored in the APPLICATION

FILTER field (#10) has been modified to include the passing of a date.

UCUM Codes **Added**

The UCUM (Unified Code for Units of Measure) file provides a reference table of UCUM codes commonly used for laboratory and clinical measures. See http://unitsofmeasure.org for the full UCUM specification. This table was compiled by the National Library of Medicine, National Institutes of Health, U.S. Department of Health and Human Services with content contributions from Intermountain Healthcare and the Regenstrief Institute. The table can be found at: https://loinc.org/usage/units. The controlled subscription ICRs #6224 and #6225 facilitate the use of UCUM codes by VistA applications that record measurements.

Shortcut User Default **Added**

Context sensitive shortcuts are now a user default. For example, the user may have one set of shortcuts for searching using the Problem List application and another set defined for another application.

Silent Lookup **Added**

A Silent Lookup was added in support of GUI. The Lexicon Special Lookup routine has been modified to call the Silent Lookup so that the behavior of the loud lookup would be identical to the silent lookup. This lookup also includes:

- Reordering the selection list with the most frequently used at the top
- Placing the exact match at the top of the selection list

5. Lexicon Example Entry – Migraine Headache

Terms

Concept:	Migraine	
Symptoms:	Hemicrania	Directly Linked to Concept
	Migraine Headache	Directly Linked to Concept
Variants:	Hemicrania	Indirectly Linked (via Synonym)
	Hemicranias	Indirectly Linked (via Synonym)
	Migraines	Directly Linked to Concept

Definition

A periodic vascular headache, usually temporal, and unilateral in onset, commonly associated with irritability, nausea, vomiting, constipation or diarrhea, and often photophobia.

Semantic Class/Type

Diseases/Pathologic Processes	Signs and Symptoms
	Disease or Syndrome

Classification Systems/Codes

COSTAR	Computer Stored Ambulatory Records Term File	485/486
COSTART	Coding Symb Thesaurus - Adverse Reaction Terms	MIGRAINE
CRISP	CRISP Thesaurus, Nat Inst of Health	2056-6472
ICD-9-CM	Intl' Class of Diseases, 9th Rev, Clin Mod	346.9/346.
SNOMED D	Sys Nomen of Med, Diagnostic, 2nd Ed	D-8250

6. Package Components

6.1 Manager Options

Lexicon Management Menu

Defaults . . .

[LEX MGR DEFAULTS] Menu

This menu contains two options, one to modify user defaults and one to list user defaults.

Edit User/User Group Defaults LEXDMG
[LEX MGR USER DEFAULTS]

This option allows a manager to modify user defaults (filter, display, shortcuts, vocabulary) for either a single user or a group of users (based on service).

List User/User Group Defaults LEXDD1
[LEX MGR LIST DEFAULTS]

This option allows a manager to list user defaults to a device (filter, display, shortcuts, or vocabulary) for either a single user or a group of users (based on service). It also allows the manager to limit the listing to users with or without defaults.

Edit Lexicon . . .

[LEX MGR EDIT LEXICON] Menu

Very few fields in the Lexicon may be edited. This menu option contains two sub-options that allow managers to edit those [few] fields. One sub-option allows a manager to edit a term definition and the other to edit shortcuts (by context).

Edit Term Definition LEXEDF1
[LEX MGR EDIT DEFN]

This option lets you edit the definition of an expression. This definition is accessible during searches using the Lexicon help routine.

Edit Shortcuts by Context LEXSC

[LEX MGR EDIT SHORTCUTS]

This option lets managers add or delete shortcuts in a selected context.

Edit Search Threshold for a Coding System LEXDMGS
[LEX MGR EDIT SEARCH THRESHOLD]

This allows a manager to edit the search threshold for a coding system. That is the default number of record to examine before prompting the user to continue or refine the search.

User Manager/Options

Lexicon Utility Menu

[LEX UTILITY] Menu

This menu contains two sub-options, Look-up Term and User Defaults.

Look-up Term LEXLK
[LEX LOOK-UP]

This option lets you perform a simple lookup in the Lexicon and displays all the information known about the term selected.

User Defaults . . .

[LEX USER DEFAULTS] Menu

This menu contains five sub-options that let a single user modify or list user defaults, including the search filter, the display format, the preferred vocabulary, and shortcuts.

Filter EN^LEXDFL
[LEX USER FILTER]

This option lets the users either select or create their own filters to use while conducting searches in the Lexicon. The filter limits the response of the lookup based on the conditions found in the filter.

Display EN^LEXDCC
[LEX USER DISPLAY]

This option lets the user either select or create a display format which is used in presenting the selection list during searches in the Lexicon.

Vocabulary EN^LEXDVO
[LEX USER VOCABULARY]

This option lets the user select a default vocabulary (or subset of the Lexicon) to be used during a lookup (i.e., Nursing, Social Work, etc.).

Shortcuts New
[LEX USER SHORTCUTS] EN^LEXDCX

This option lets the user select a default set of shortcuts to use to rapidly access the Lexicon without the benefit of the special lookup.

List Defaults EN^LEXDDS
[LEX USER DEFAULT LIST]

This option lets the user list the current defaults (by application) to a device (terminal or printer).

6.2 Code Set Versioning Options

Code Sets
[LEX CSV]

ICD Diagnosis Code Set Query LEXQID
[LEX CSV ICD QUERY]
This option displays a single versioned entry from the ICD Diagnosis file #80 based on a date provided by the user. The date may be a future date.

ICD Procedure Code Set Query LEXQIP
[LEX CSV ICP QUERY]
This option displays a single versioned entry from the ICD Operations/Procedure file #80.1 based on a date provided by the user. The date may be a future date.

CPT/HCPCS Procedure Code Set Query LEXQCP
[LEX CSV CPT QUERY]
This option displays a single versioned entry from the CPT/HCPCS file #81 based on a date provided by the user. The date may be a future date.

CPT Modifier Code Set Query LEXQCM
[LEX CSV MOD QUERY]
This option displays a single versioned entry from the CPT Modifier file #81.3 based on a date provided by the user. The date may be a future date.

SNOMED CT Query LEXQSC
LEX CSV SCT QUERY
This option displays a single versioned SNOMED CT code from the Lexicon files 757.02 and 757.01 based on a date provided by the user. The date may be a future date.

ICD/CPT Code Set Change List LEXQC
[LEX CSV ICD/CPT CHANGE LIST]
This option produces a listing of ICD/CPT changes effective on the date provided by the user.

Code History LEXQH
[LEX CSV HISTORY]
This option produces a historical display of the versioned data for a selected code.

6.3 Protocols

6.3.1 Lexicon Update

[LEXICAL SERVICES UPDATE] **Extended Action**

This Protocol is invoked by the Lexicon each time an update occurs with one of the coding systems that subscribe to this protocol. Currently there are two:

[ICD CODE UPDATE EVENT]

[ICPT CODE UPDATE EVENT]

6.3.2 Lexicon Update Notification (example)

[LEXICAL SERVICES UPDATE]

This protocol is invoked when a change to the ICD-9, ICD-10, CPT-4, or HCPCS coding system occurs.

[ICD CODE UPDATE EVENT]

This protocol is invoked when a change to the ICD-9 or ICD-10 coding systems occurs.

[GMPL SELECTION LIST CSV EVENT]

This Problem List protocol is invoked when a change to the ICD coding system occurs. It reports any problems on the problem selection list that contains an inactive ICD code.

[ORCM GMRC CSV EVENT]

This OERR/Consults protocol is invoked when a change to the ICD coding system occurs. It reports any consult or procedure quick order with an inactive ICD code.

[PXRM CODE SET UPDATE ICD]

This Clinical Reminder protocol is invoked when a change to the ICD coding system occurs. It reports all inactive ICD codes in the Dialog file #801.41.

[ICPT CODE UPDATE EVENT]

This protocol is invoked when a change to the CPT-4 or HCPCS coding system occurs.

[PXRM CODE SET UPDATE CPT]

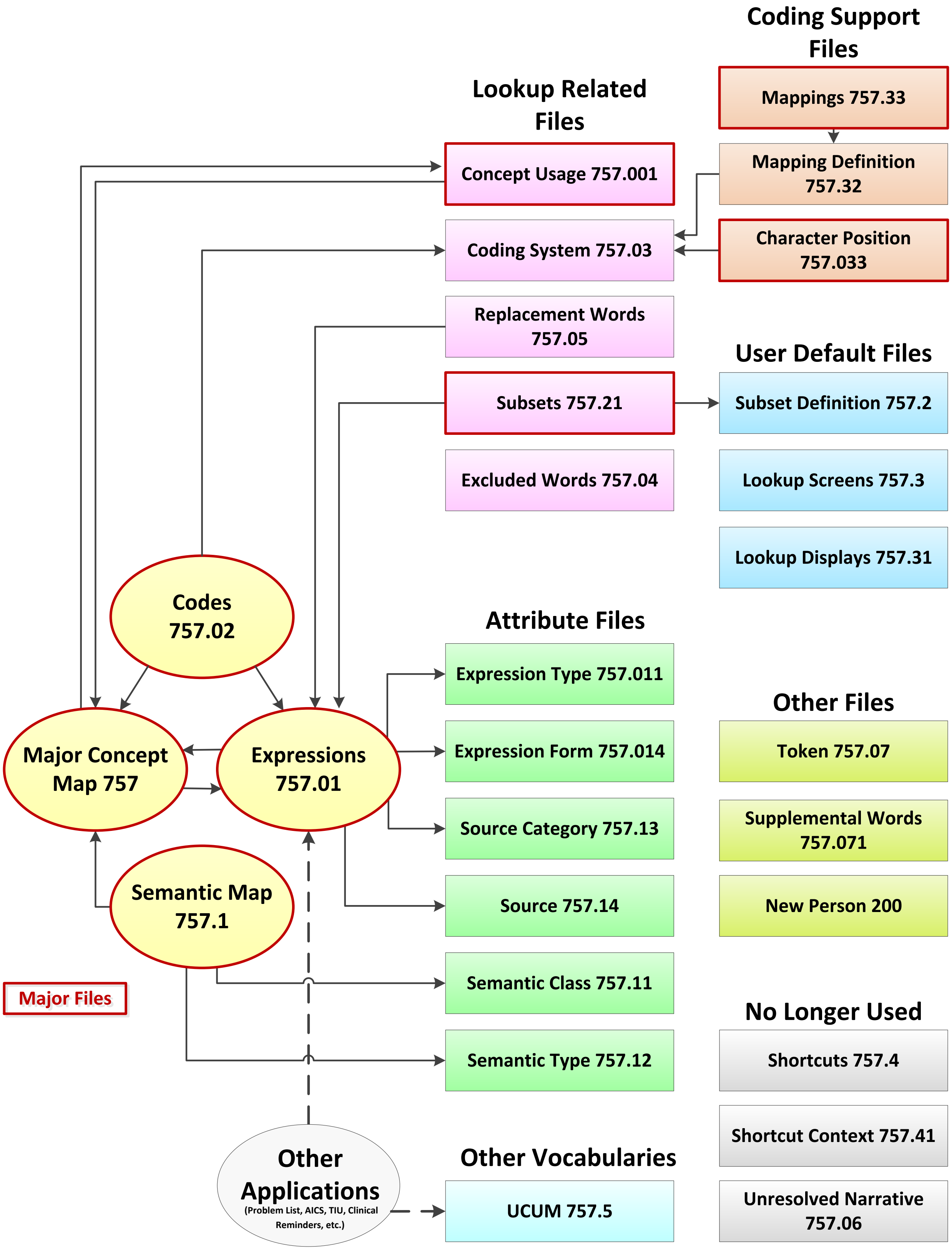
This Clinical Reminder protocol is invoked when a change to the ICD coding system occurs. It reports all inactive ICD codes in the Clinical Reminders Dialog file #801.41.

6.3.3 Mapping/Subset Update

[LEX MAPPING CHANGE EVENT] **Action**

This protocol is invoked when the activation status changes of a mapping in the MAPPINGS file #757.33 of the SCT2ICD mapping definition in the MAPPING DEFINITION file #757.32. It will either add (activated mapping) or delete (inactivated mapping) an expression in the Problem List subset in the SUBSET file #757.21.

6.4 Files, Pointers and Relationships



6.5 Lexicon Files, Fields, and Indexes

Online documentation for the Lexicon Utility’s files, fields, and cross-references may be obtained by using the FileMan's Data Dictionary Listing Utility for the file range 757-757.41 as follows:

```
>D ^DI

  VA FileMan 21.0

         Select OPTION: DATA DICTIONARY UTILITIES
Select DATA DICTIONARY UTILITY OPTION: LIST FILE ATTRIBUTES
 START WITH WHAT FILE: SHORTCUT CONTEXT// 757 MAJOR CONCEPT MAP
                                           (99861 entries)
     GO TO WHAT FILE: MAJOR CONCEPT MAP// 757.41  SHORTCUT CONTEXT
                                           (3 entries)
         Select LISTING FORMAT: STANDARD//   <Enter>
         DEVICE:   <Enter>  VAX

STANDARD DATA DICTIONARY #757 -- MAJOR CONCEPT MAP FILE
STORED IN ^LEX(757,  (99861 ENTRIES)   SITE: SALT LAKE IRMFO
         DATA   NAME   GLOBAL  DATA
         ELEMENT TITLE   LOCATION TYPE
 ----------------------------------------------------------------
This file is a map of Major Concepts within the Lexicon Utility
and contained in the expression file (#757.01). While the primary
purpose of this file is for file maintenance, it also supports
various other functions such as the display of classification
codes by linking concepts to codes, and the ability to filter out
unwanted search responses by linking concepts to semantic classes
and types.

NOTE: Data Entries in this file should not be altered by the
site.

           DD ACCESS: @
           RD ACCESS: @
           WR ACCESS: @
           DEL ACCESS: @
           LAYGO ACCESS: @
           AUDIT ACCESS: @

POINTED TO BY: MAJOR CONCEPT field (#.01) of the CONCEPT USAGE
File (#757.001)
  MAJOR CONCEPT field (#1) of the EXPRESSIONS File (#757.01)
  MAJOR CONCEPT field (#3) of the CODES File (#757.02)
  MAJOR CONCEPT field (#.01) of the SEMANTIC MAP File (#757.1)

          CROSS
          REFERENCED BY: EXPRESSION(B)

757,.01  EXPRESSION             0;1 POINTER TO EXPRESSIONS FILE
                                    (#757.01) (Required)
          OUTPUT TRANSFORM: S Y=$P(^LEX(757.01,Y,1),U,1)
         LAST EDITED:  APR 19, 1996
 DESCRIPTION: Pointer to the clinical expression in the
Expression file (#757.01) which represents the preferred term for
the Major Concept.


UNEDITABLE

 CROSS-REFERENCE:  757^B
 1)= S ^LEX(757,"B",$E(X,1,30),DA)=""
 2)= K ^LEX(757,"B",$E(X,1,30),DA)

 ^LEX(757,"B",MCE,IEN) - where MCE is a pointer to the expression
in the Expression file #757.01 which represents a clinical Major
Concept Expression, and IEN is the Internal Entry Number in the
Major Concept Map file #757 .......................

 ........
```

You may also retrieve the on-line documentation for any single file listed below by entering a single file number at START WITH WHAT FILE: prompt and not entering a file number at the GO TO WHAT FILE: prompt. The following is a listing of file numbers and file names contained in the Lexicon Utility package:

757	MAJOR CONCEPT MAP
757.001	CONCEPT USAGE
757.01	EXPRESSIONS
757.011	EXPRESSION TYPE
757.014	EXPRESSION FORM
757.02	CODES
757.03	CODING SYSTEMS
757.033	CHARACTER POSITIONS
757.04	EXCLUDED WORDS
757.05	REPLACEMENT WORDS
757.06	UNRESOLVED NARRATIVES
757.07	TOKENS
757.071	SUPPLEMENTAL WORDS
757.1	SEMANTIC MAP
757.11	SEMANTIC CLASSES
757.12	SEMANTIC TYPES
757.13	SOURCE CATEGORY
757.14	SOURCE
757.21	SUBSETS
757.3	LOOK-UP SCREENS
757.31	DISPLAYS
757.32	MAPPING DEFINITIONS
757.33	MAPPINGS
757.4	SHORTCUTS
757.41	SHORTCUT CONTEXT
757.5	UCUM CODES

6.6 Routines Supporting the Lexicon

6.6.1 Special Lookup

Because of the requirement to reorder the list after the search and before user selection, this lookup now calls the Silent Lookup so that the search results from the Special Lookup and Silent Lookup remain consistent. The previous special lookup called the API to the Kernel Toolkit Multi-Term Lookup Utility (MTLU).

These routines are responsible for:

- Obtaining the user input search string and passing it to Silent Lookup, then prompting for and getting the user's response.
- Storing and mailing Unresolved Narratives. An Unresolved Narrative occurs when the lookup either does not find a match or when it finds a match but the user, not satisfied with the results, does not select an expression from the list. These Unresolved Narratives are rolled-up into a mail message and submitted for inclusion in later releases of the Lexicon.
- Returning the standard FileMan variables and one additional variable Y(1) containing an active ICD code when one exists.

Routines:

LEXA1	Lookup (user input/special lookup routine)
LEXA2	Selection
LEXA3	Display
LEXA4	Unresolved Narratives

6.6.2 Silent Lookup

This lookup searches the Lexicon and responds by building global and local arrays.

Lookup Routines:

LEXA	Lookup
LEXASC	Lookup by Shortcuts (disabled in patch LEX*2.0*103)
LEXAB	Exact Match B Index
LEXABC	Lookup by Codes
LEXABC2	Lookup by Codes (continued)
LEXALK	Lookup by Keywords
LEXAFIL	Lookup with Filter
LEXAI	Lookup by Internal Entry Number (IEN)

User Response Routines:

LEXAR	Interpret User Response
LEXAR2	Up-arrow, Jump, Null
LEXAR3	Help, Definition, MAX, Refresh
LEXAR4	Select Entry
LEXAR5	Select Entry
LEXAR6	Unresolved Narratives
LEXAR7	MAIL Narratives

Miscellaneous Lookup Routines

LEXAL	List Builder (Global)
LEXAL2	List Builder (Array)
LEXAM	Setup/Parse User Input
LEXASO	Get Classification Sources
LEXAS	Spell Check User Input
LEXAS2	Spell Check User Input
LEXAS3	Spell Check User Input
LEXAS4	Spell Check User Input
LEXAS5	Spell Check User Input
LEXAS6	Spell Check User Input
LEXAS7	Spell Check User Input

Lookup Setup Routines

LEXMTLU	Set up for XTLKKWL API
LEXSET	Set up App/User for Lookup
LEXSET2	Set up App/User for Lookup
LEXSET3	Set up App/User for Lookup
LEXSET4	Set up Functions
LEXSET5	Set up App/User for Lookup

6.6.3 Setting/Displaying User Defaults

Currently, there are only four (4) types of user defaults

- Vocabulary: The word index to use during the search.
- Display: A string of classification coding systems to display during the search.
- Filter: A condition for selecting terms based on semantic or classification systems.
- Shortcut Context: A set of keywords resulting in immediate return of an expression.

These routines allow users and managers to either select from pre-existing defined default values or create their own.

Default	Select Default from a List	Create your own Default
Filter	Yes	Yes
Display	Yes	Yes
Shortcuts	Yes	No
Vocabulary	Yes	No

Additionally, managers may set defaults for multiple users based on service. Both users and managers may display user defaults. Users can only display their own defaults in a human readable format much like that shown in the section, “Controlling the View”. A manager may display the defaults for a single user or a user group, showing the actual data stored as the default values. Because of the complexity of the filtering by semantic classes and types (see Controlling the View), a large number of these routines (LEXDFL*) are devoted to the creation of these filtering strings.

Manager Routines

LEXDMG	Manager Options
LEXDMGU	Select User/User Group
LEXDMGV	Verify Selections
LEXDMGS	Search Threshold
LEXDMGO	Overwrite Existing Defaults
LEXDMGT	Task to Modify Defaults

Default Filter Routines

LEXDFL	Default Filter
LEXDFLS	Select a Filter
LEXDFLC	Create a Filter
LEXDFLT	Filter Type
LEXDFST	Filter by Semantics
LEXDFSB	Filter/Exclude Classes/Types
LEXDFSI	Include Semantic Classes/Types
LEXDFSE	Exclude Semantic Classes/Types
LEXDFSO	Filter by Sources
LEXDCCC	Create Filter by Source
LEXDFSS	Filter by Sources and Semantics

Default Display Routines

LEXDCC	Default Display
LEXDCCS	Select a Display
LEXDCCC	Create a Display

Default Vocabulary Routines

LEXDVO	Default Vocabulary
LEXDVOS	Select Default Vocabulary

Default Shortcut Context Routines

LEXDCX	Default Shortcut Context
LEXDCXS	Select Default Shortcut Context

Display Defaults Routines

LEXDD1	Display Defaults
LEXDD2	Build List
LEXDD3	Display List
LEXDD4	List Elements
LEXDDS	Single User Default
LEXDDSD	Single User Display
LEXDDSP	Single User Parse
LEXDDSS	Single User Save

Translate User Defaults Routines

LEXDDT1	Translate String

LEXDDT2	Concatenate Translated String
LEXDDTC	Translate Shortcut String
LEXDDTD	Translate Display String
LEXDDTF	Translate Filter String
LEXDDTV	Translate Vocabulary String

Miscellaneous

LEXDFN	Default Names
LEXDFN2	Default Names
LEXDSV	Save Defaults
LEXDM	Select/Create/Delete Default
LEXDM2	Verify Default Delete
LEXDM3	Default Name
LEXDM4	Get Application/User/Service

6.6.4 Edit

These routines provide managers at a site with the ability to edit the definition and the shortcuts associated with an expression. The definition is used as part of the Lexicon's help routines to assist in the selection of a term from a selection list. An edited definition is mailed to SLC IRMFO for review and possible inclusion into a future release. The shortcuts are used to associate a keyword to a specific expression to rapidly access the Lexicon without engaging the look-up engine.

Routines:

LEXEDF1	Select/Display/Mail Edited Definition
LEXEDF2	Edit Definition
LEXSC	Edit Shortcuts
LEXSC2	Edit Shortcuts
LEXSC3	Edit Shortcuts

6.6.5 ICD-10 Support

The following routines support the International Classification of Diseases, Diagnosis (ICD) 10th revision coding system APIs and data sets:

Routines

LEX10CS	Supported ICD-10 APIs
LEX10CS2	Supported ICD-10 APIs (cont)
LEX10CX	ICD-10 Cross-Over
LEX10CX2	ICD-10 Cross-Over - Source
LEX10CX3	ICD-10 Cross-Over - Target
LEX10CX4	ICD-10 Cross-Over - Prompts
LEX10CX5	ICD-10 Cross-Over - Miscellaneous
LEX10DBC	Diagnosis Lookup by Code
LEX10DBR	Diagnosis Lookup by Root/Category
LEX10DBT	Diagnosis Lookup by Text
LEX10DL	Test ICD-10 Diagnosis Lookup
LEX10DLS	Test ICD-10 Diagnosis Lookup selection
LEX10DU	ICD-10 Diagnosis Utility
LEX10DX	ICD-10 Diagnosis
LEX10PL	Test ICD-10 Procedure Lookup
LEX10PLA	Test ICD-10 Procedure Lookup Abbreviations

LEX10PLS	Test ICD-10 Procedure Lookup Selection
LEX10PR	ICD-10 Procedure
LEX10TAX	Clinical Reminder ICD-10 Support

6.6.6 Indexing and Input Transformations

Entry points for these routines are embedded into the Data Dictionary to maintain indexes and to control input transformations.

The indexes that are controlled in this manner include:

Index	File	Subscript	Routine
Main Word Index	757.01	AWRD	LEXNDX1
Subset Word Index	757.21	“A”_SUBSET	LEXNDX2
Application Index	757.2	APPS	LEXNDX2
Linked Word Index	757.01	AWRD	LEXNDX3
Linkages	757.05	ALINK	LEXNDX4/5
String Index	757.01	ASL	LEXNDX6
Shortcut Index	757.4	ARA	LEXNDX6
Code Set Indexes	757.02	ACT/APR/ADX	LEXNDX8
Mapping Indexes	757.33	G	LEXNDX9
Word Index	757.07	D	LEXNDX9
Phrase Index	757.07	AED	LEXNDX9

Input transformations controlled in this manner include:

Field	File	Routine
Word (Excluded)	757.04	LEXERI
Word (Replace)	757.05	LEXERI
Replacement Term	757.05	LEXERI

Indexing Related Routines

LEXNDX1	Main Word Index
LEXNDX2	Sub-Set Word Index
LEXNDX3	Replacement Words
LEXNDX4	Linked Words Index
LEXNDX5	Linked Words
LEXNDX6	Index Strings/Shortcuts
LEXNDX8	Index Codes (757.02)
LEXNDX9	Index Mappings (757.33)
LEXERF	Functions for Excluced/Replacement Words
LEXERI	Excluded/Replacement Input Transformations

LEXRX	Repair Index Lexicon
LEXRXA	Repair Index 757 B
LEXRXB	Repair Index 757.001 B/AF
LEXRXC	Repair Index 757.01 B/ADC/ADTERM
LEXRXC2	Repair Index 757.01 AMC/AWRD
LEXRXC3	Repair Index 757.01 ASL/APAR
LEXRXD	Repair Index 757.02 B/ACODE/ACT
LEXRXD2	Repair Index 757.02 ADC/AMC/ASRC
LEXRXD3	Repair Index 757.02 ADCODE/APCODE
LEXRXD4	Repair Index 757.02 AVA/CODE/ADX/APR
LEXRXE	Repair Index 757.1 B/AMCC/AMCT/ASTT
LEXRXF	Repair Index 757.21 B/C/AA
LEXRXG	Repair Index 757.33 B/C/G
LEXRXG2	Repair Index 757.33 ACT/AMAP/AREV
LEXRXG3	Repair Index 757.33 ASRC/ATAR
LEXRXR	Repair Index Lexicon - Reports
LEXRXS	Repair Index - Small Files
LEXRXS2	Repair Index - Small Files
LEXRXXA	Repair Index Ask
LEXRXXM	Repair Index Miscellaneous
LEXRXXM2	Repair Index Miscellaneous (cont)
LEXRXXP	Repair Index Parse
LEXRXXS	Repair Index Save/Send
LEXRXXT	Repair/Re-Index - Task
LEXRXXT2	Repair/Re-Index - Task (cont)
LEXRXXT3	Repair/Re-Index - Task (cont)

6.6.7 Code Set Versioning Queries

Entry points for these routines are embedded called by the [LEX CSV] name spaced options and display ICD or CPT codes and the versioned data associated with those codes.

Routines

LEXQC	Code Set (CSV) – Extract
LEXQC2	Code Set (CSV) – Save
LEXQC3	ICD/ICP/10D/10P
LEXQC4	CPT/MOD
LEXQCM	CPT Modifiers – Extract
LEXQCM2	CPT Modifiers – Save
LEXQCMA	CPT Modifiers – Ask
LEXQCP	CPT Procedures – Extract
LEXQCP2	CPT Procedures – Save
LEXQCPA	CPT Procedures – Ask
LEXQID	ICD Diagnosis – Extract
LEXQID2	ICD Diagnosis – Extract (cont)
LEXQID3	ICD Diagnosis – Extract (cont)
LEXQID4	ICD Diagnosis – Save
LEXQIDA	ICD Diagnosis – Ask
LEXQIP	ICD Procedure – Extract
LEXQIP2	ICD Procedure – Extract (cont)

LEXQIP3	ICD Procedure – Save
LEXQIPA	ICD Procedure – Ask
LEXQH	Code History – Main
LEXQHA	Code History – Ask
LEXQHL1	Code History – ICD Dx Extract
LEXQHL2	Code History – ICD Op Extract
LEXQHL3	Code History – CPT/HCPCS Extract
LEXQHL4	Code History – CPT Modifier Extract
LEXQHL5	Code History – Lexicon ICD/CPT Extract
LEXQHLM	Code History – Extract Misc
LEXQL	Code Lookup
LEXQL2	Code Lookup (List)
LEXQL3	Code Lookup (ICD)
LEXQL4	Code Lookup (CPT/Mod)
LEXQD	Defaults
LEXQO	Outputs
LEXQM	Miscellaneous
LEXQSC	SNOMED CT – Extract
LEXQSC2	SNOMED CT – Extract (cont)
LEXQSCA	SNOMED CT – Ask
LEXQWA	Lexicon Abbreviations – Display
LEXQWS	Supplemental Keywords – Display

6.6.8 Supplemental Keyword Utility

These routines populate the supplemental keyword fields based on rules contained in the SUPPLEMENTAL WORD file #757.071.

Routines

LEXWUD	Deletes duplicate supplemental keywords
LEXWUI	Adds supplemental keywords to files 80 and 80.1
LEXWUL	Adds supplemental keywords to the Lexicon
LEXWUM	Miscellaneous support for supplemental keywords
LEXWUP	Purge supplemental keywords
LEXWUS	Adds keywords to the Lexicon and ICD files

6.6.9 Miscellaneous

Routines

LEXCODE	Convert Code to IEN
LEXMUCUM	UCUM APIs
LEXSRC	Convert IEN to Code
LEXSRC2	Check Status of a Code
LEXTRAN	Retrieve Data for Specific Codes or Texts
LEXTRAN1	Retrieve Designations and Mappings for Codes
LEXTRAN3	Mapping/Subset Updates
LEXTOKN	Parse Text into Words
LEXTOKN2	Special Case Words
LEXPRNT	Print Utilities

LEXHLP	Help
LEXHLP2	Coding System Specific Help
LEXU	Miscellaneous Utilities
LEXU2	Miscellaneous Utilities (continued)
LEXU3	Miscellaneous Utilities (continued)
LEXU4	Miscellaneous Utilities (continued)
LEXU5	Miscellaneous Utilities (continued)
LEXU6	Miscellaneous Utilities (continued)
LEXU7	Miscellaneous Utilities (continued)
LEXUH	Miscellaneous Utilities (Help)
LEXLK	Demo Lookup
LEXLK2	Demo Lookup
LEXXFI	File Info
LEXXFI2	File Info - Checksums
LEXXFI3	File Info - Record Counts
LEXXFI4	File Info - Record Counts (continued)
LEXXFI5	File Info - Versions/Revisions
LEXXFI6	File Info - DD Information
LEXXFI7	File Info - Prompts and Header
LEXXFI8	File Info - Miscellaneous
LEXXFQ	Set Frequencies in 757.001
LEXXGI	Global Import (Install ^LEXM)
LEXXGI2	Global Import (Protocol/Checksum/Misc)
LEXXGI3	Global Import (Load Data in ^LEXM)
LEXXGI4	Global Import (Repair at Site)
LEXXGP1	Global Post-Install (Repair Expressions)
LEXXGP2	Global Post-Install (Repair Expressions)
LEXXGP3	Global Post-Install (Repair Subsets)
LEXXGU	Global Uninstall (^LEXU)
LEXXGU2	Global Uninstall (^LEXU)
LEXXII	Lexicon Status (Install Info)
LEXXII2	Lexicon Status (Data Status)
LEXXM	Mixed Case (replaced by file 757.07, old)
LEXXMC	Mixed Case (updated, mixed case rule based, new)
LEXXM1	Mixed Case 1 character (replaced by file 757.07)
LEXXM2	Mixed Case 2 characters (replaced by file 757.07)
LEXXM3	Mixed Case 3 characters (replaced by file 757.07)
LEXXM4	Mixed Case 4 characters (replaced by file 757.07)
LEXXM5	Mixed Case 5 characters (replaced by file 757.07)
LEXXM6	Mixed Case 6-12 characters (replaced by file 757.07)
LEXXMM	Mixed Case Miscellaneous (replaced by file 757.07)

7. Package Characteristics and Usage

7.1 Supported Callable Routines

The following routines are supported:

7.1.1 LEXSET

CONFIG^LEXSET(App,Subset,Date) ICR 1609

This entry point sets up the lookup variables for searching the Lexicon. It is not necessary to use this entry point for either Special Lookup or Silent Lookup since this entry point is embedded in Silent Lookup. You should use this entry point when:

- A search is to be conducted using the Kernel Toolkit's Multi-Term Lookup Utility (MTLU).
- It is desirable for an application to control the user defaults for a given situation (for example, the application may require the return of an ICD code).

This entry point searches the Subset Definition file (#757.2) and retrieves the application defaults, the subset defaults, and user defaults. Then it merges the three sets of defaults into a single list of defaults based on the information it has retrieved. For instance, if the application has defined the Overwrite flag as true, then the application defaults have precedence over any user defaults found and the user defaults are ignored. If the global root is anything other than ^LEX(757.01, then the user defaults for vocabulary and filter are ignored while the user defaults for display and shortcuts are used.

Input

Application

This is the application identification and may be in the form of a name (e.g., PROBLEM LIST), a namespace (e.g., GMPL) or a pointer (e.g., Internal Entry Number—IEN) from an application definition in the Subset Definition file (#757.2). The default value for this parameter, if it is not supplied, is one (1), pointing to the Lexicon application definition. This is the same as the Application input parameter for LOOK^LEXA. A list of appropriate application identifiers is found in the Subset Definition file #757.2 in the AN index. Examples:

Application ID	Application or Purpose
CPT	CPT-4 Procedures
CHP	CPT-4 and HCPCS
DSM	Mental Health DSM-4
GMPL	Problem List
GMPF	Clinical Findings
GMPX	Problem List Standard
ICD	ICD-9-CM Diagnosis
10D	ICD-10 Diagnosis
10P	ICD-10 Procedures
LEX	Generic Lexicon Utility

IBD	Encounter Forms
DSS	Document Storage System
PSN	Pharmacy (drug/form)
PXRM	Clinical Reminders
RA	Brest Imaging Rpt Data Sys BI-RADS
VAC	VA Frequently used Codes

Subset

This parameter represents the vocabulary subset to use during the search. This parameter is passed as a subset name (e.g., NURSING), or the subset mnemonic (e.g., NUR) or as a pointer to the Subset Definition file (#757.2). The default value for this parameter, if it is not supplied, is one (1) pointing to the main vocabulary (WRD subset) of the Lexicon located in file 757.01 and indexed by AWRD. This is the same as the Subset input parameter for LOOK^LEXA. A list of appropriate vocabulary subsets is found in the Subset Definition file #757.2 in the AA and AB indexes. Examples:

Subset ID	Purpose
DEN	Dental Terminology
IMM	Immunologic Terminology
NUR	Nursing Terminology
SOC	Social Work Terminology
WRD	General Use (default)
CPT	CPT Procedures
CHP	CPT/HCPCS Procedures
DSM	Mental Health DSM-IV
ICD	ICD-9-CM Diagnosis
10D	ICD-10-CM Diagnosis
10P	ICD-10-PCS Procedures
PLS	Problem List Standard
SCT	SNOMED CT
SCD	Service Connected Disabilities
NIC	Nursing Interventions
PL1	Problem List #1 General
PL2	Problem List #2 ICD Diagnosis and Procedures
DL1	DSS ICD-9 Diagnosis
DL2	DSS ICD-9 Procedures
DL3	DSS ICD-10 Diagnosis
DL3	DSS ICD-10 Procedures
DL4	DSS CPT/HCPCS Procedures
BI1	Brest Imaging Reporting Data System
EF1	Encounters Forms
EF2	Encounters Dx (ICD-9)
EF3	Encounters Dx (ICD-10)
VAC	VA Frequently used codes (ICD, ICP, DSM, CPT)

Date

This is a date in FileMan format used to return the code that is active on the date supplied. If the date is not passed, then TODAY is used.

Output

^TMP(“LEXSCH”,$J)

If the variable LEXQ does not exist or is preset to 1, then the merged set of default values are placed in the global array ^TMP("LEXSCH",$J) as in the case of a standard DIC lookup or Silent Lookup. The following is a brief summary of the global array:

Global Array Segment	Purpose
^TMP("LEXSCH",$J,"ADF",0)	Application Default Flag
^TMP("LEXSCH",$J,"APP",0)	Application
^TMP("LEXSCH",$J,"DIS",0)	Display
^TMP("LEXSCH",$J,"FIL",0)	Filter
^TMP("LEXSCH",$J,"FLN",0)	File Number
^TMP("LEXSCH",$J,"FMT",0)	Output Format
^TMP("LEXSCH",$J,"GBL",0)	Global Root
^TMP("LEXSCH",$J,"IDX",0)	Index
^TMP("LEXSCH",$J,"LEN",0)	List Length
^TMP("LEXSCH",$J,"LOC",0)	Hospital Location
^TMP("LEXSCH",$J,"MOD",0)	Modifiers
^TMP("LEXSCH",$J,"OVR",0)	Overwrite user defaults
^TMP("LEXSCH",$J,"SVC",0)	Service
^TMP("LEXSCH",$J,"UNR",0)	Unresolved narratives
^TMP("LEXSCH",$J,"USR",0)	User (DUZ)
^TMP("LEXSCH",$J,"VDT",0)	Version Date
^TMP("LEXSCH",$J,"VOC",0)	Vocabulary

If the variable LEXQ=0, then you should define the variable X as the user input and the merged set of default values are set into the appropriate local variables for making a direct call to the MTLU via the entry point ^XTLKKWL. The following variables are returned:

Variable	Content
DIC	Global Reference (root)
DIC (“S”)	Search Filter (MUMPS code)
DIC (0)	Search Conditions (codes)
LEXAP	Application (pointer to file 757.2)

Variable	Content
LEXQ	Silent lookup flag (codes)
LEXSHOW	Displayable Codes (free text)
LEXSUB	Subset (free text)
LEXUN	Unresolved Narratives Flag
X	User input (free text)
XTLKGBL	Global Reference (root)
XTKLHLP	Help (MUMPS code)
XTLKKSCH("DSPLY")	Display (routine entry point)
XTLKKSCH("GBL")	Global Reference (root)
XTLKKSCH("INDEX")	Index to use ("A"_Subset)
XTLKSAY	MTLU display (codes)
XTLKX	User input (free text, same as X)

7.1.2 LEXU

$$ICDONE^LEXU(IEN,Date)	**ICR 1573**
$$CPTONE^LEXU(IEN,Date)	**ICR 1573**
$$DSMONE^LEXU(IEN,Date)	**ICR 1573**
$$D10ONE^LEXU(IEN,Date)	**ICR 5679**
$$P10ONE^LEXU(IEN,Date)	**ICR 5679**

These entry points (extrinsic functions) allow an application to retrieve a single code for a given classification system (ICD-9, ICD-10, CPT-4, and DSM-IV) and for a given internal entry number (IEN).

Input

IEN — This is an Internal Entry Number from the Lexicon Expression file #757.01.

Date — This is a date in FileMan format used to return the code that is active on the date supplied. If the date is not passed, then TODAY is used.

Output

Code) — A single classification code, if one is found, or null, if no code is found.

$$ICDONE	One ICD-9 Diagnosis Code
$$CPTONE	One CPT Procedure Code
$$CPCONE	One HCPCS Code
$$D10ONE	One ICD-10 Diagnosis Code
$$P10ONE	One ICD-10 Procedure Code
$$DSMONE	One DSM-IV Diagnosis Code

$$DX^LEXU(IEN,Date) ICR 5679

This entry point is to be used as a screen Lexicon searches. It will screen out all terms not linked to either an ICD-9 or ICD-10 code. The code type (ICD-9 or ICD-10) is determined by date. If the date passed in is before the ICD-10 implementation date then it will screen on ICD-9 codes. If the date is on or after the ICD-10 implementation date then it will screen on ICD-10 codes.

Input

IEN — This is an internal entry number in the expression file #757.01. When performing FileMan lookups, set it to the variable +Y. (Required)

Date — This is the versioning date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. Additionally, if the date passed is earlier than the ICD-10 implementation date then the screen will only consider ICD-9 codes. If the date is on or after the ICD-10 implementation date then the screen will only consider ICD-10 codes. If the date is not passed, then TODAY's date will be used. (Optional)

Assuming the variable Date is a valid FileMan format date:

Screen on ICD Diagnosis

```
S DIC("S")="I $$DX^LEXU(+Y,Date)"
```

Date is before the ICD-10 implementation date then screen on ICD-9 Diagnosis

Date is on or after the ICD-10 implementation date, then screen on ICD-10 Diagnosis

If the date is not passed, then TODAY is used.

Output

$$DX — This is a Boolean value:

$$DX = 1	TRUE	If the Lexicon entry is linked to an active ICD code of the type determined by date.
$$DX = 0	FALSE	If the Lexicon entry is not linked to an active ICD code of the type determined by date.

$$ONE^LEXU(IEN,Date,SAB) ICR 5679

Returns a single code for a given internal entry number (IEN) for a specified date and source (coding system).

Input

IEN Internal Entry Number in the Expression file ^LEX(757.01).

Date This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.

SAB Source, this is an internal entry number in file #757.03 or the 3 character source mnemonic (found on the ASAB cross-reference in file #757.03) or the SOURCE ABBREVIATION (.01 field in file #757.03).

Output

$$ONE A single code belonging to the specified coding system by the source abbreviation that is active on the date provided and assigned to the expression indicated by the internal entry number (IEN).

$$ALL^LEXU(IEN,Date,SAB) ICR 5679

Returns all codes for a given internal entry number (IEN) for a specified date and source (coding system).

Input

IEN Internal Entry Number in the Expression file #757.01.

Date This is a date in FileMan format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY.

SAB Source, this is an internal entry number in file #757.03 or the 3 character source mnemonic (found on the ASAB cross-reference in file #757.03) or the SOURCE ABBREVIATION (.01 field in file #757.03).

Output

$$ALL A string of codes for the source provided (one or more) delineated by a semi-colon or null if no codes are found for the source.

$$ICD^LEXU(IEN,Date) ICR 1573
$$D10^LEXU(IEN,Date) ICR 5679

These entry points (extrinsic functions) allows an application to retrieve a series of ICD codes for a given internal entry number (IEN). However, the ability to return multiple codes was disabled with patch LEX*2.0*86. It will still return the primary ICD-9 code ($$ICD) or primary ICD-10 code ($$D10) for term.

Input

IEN	This is an Internal Entry Number from the Lexicon Expression file #757.01.

Output

Code	Returns the primary ICD code for a term or null if no code is found.

$$IMPDATE^LEXU(SAB) ICR 5679

This entry point (extrinsic function) returns the implementation date for a specified source.

Input

SAB	Source, this is an internal entry number in file #757.03 or the 3 character source mnemonic (found on the ASAB cross-reference in file #757.03) or the SOURCE ABBREVIATION (.01 field in file #757.03).

Output

$$IMPDATE	The date that a coding system was implemented in VistA in FileMan format.

$$CSYS^LEXU(Sys,Date) ICR 5679

This entry point returns information about a coding system on file in the Coding System file #757.03.

Input

Sys Coding system identification system and can be in any of the following formats:

A nickname if one exist, i.e. HCPCS, DSM, NANDA, BIRADS

First three characters of source abbreviation (file #757.03, field .01, also known as the Source Abbreviation - SAB)

Nomenclature (file #757.03, field 1), i.e., ICD-9-CM, ICD-10-PCS

Type (only for ICD), i.e., "DIAG" or "PROC" (requires date)

Date Versioning date in FileMan format used to determine coding system if only the type is known (DIAG or PROC) and to determine the correct SDO version if one exists. If the date is not passed, then TODAY is used.

Output

$$CSYS A 13 piece caret (^) delimited string

1	IEN
2	SAB (3 character source abbreviation)
3	Source Abbreviation (3-7 char) (#.01)
4	Nomenclature (2-11 char) (#1)
5	Source Title (2-52 char) (#2)
6	Source (2-50 char) (#3)
7	Entries (numeric) (#4)
8	Unique Entries (numeric) (#5)
9	Inactive Version (1-20 char) (#6)
10	HL7 Coding System (2-40 char) (#7)
11	SDO Version Date (date) (757.08 #.01)
12	SDO Version Id (1-40 char) (757.08 #1)
13	Implementation Date (date) (#11)

$$HIST^LEXU(Code,Sys,.ARY) ICR 5679

This entry point returns a code’s activation history in an array passed by reference.

Input

Code This is a classification code found in the CODES file #757.02. (Required)

Sys This is a coding system found in the CODING SYSTEMS file #757.03. It can be in the form of a pointer, a source abbreviation, or the name of a coding nomenclature. (Required)

Output

.ARY This is an array of status effective dates and activation status passed by reference. (Required)

ARY(0) = Number of Activation History
ARY(date,status) = Comment

Status

0 = Inactive
1 = Active

Comments include:

Activated
Inactivated
Re-activated
Revised
Reused

$$HIST This is the number of activation history entries found

Or

-1 ^ Error Message

$$PERIOD^LEXU(Code,Sys,.ARY) ICR 5679

This entry point returns the activation periods (active from and to) of a code in an array passed by reference.

Input

Code This is a classification code found in the CODES file #757.02. (Required)

Sys This is a coding system found in the CODING SYSTEMS file #757.03. It can be in the form of a pointer, a source abbreviation, or the name of a coding nomenclature. (Required)

Output

.ARY This is an array of activation periods (including active on date and inactive on date when inactive) passed by reference. (Required)

ARY(0) 6 piece "^" delimited string

1 Number of Activation Periods found
2 Coding System (pointer to file 775.03)
3 Coding System Abbreviation
4 Coding System Nomenclature
5 Coding System Full Name
6 Coding System Source or Name

ARY(Activation Date) = 4 piece "^" delimited string

1 Inactivation Date (conditional)
2 Pointer to Expression file #757.01 for the code in piece #2 above (required)

3 Variable Pointer IEN;Root of a national file (see below) Include when the code exist in an national file (conditional)

CPT Procedure code	IEN;ICPT(
ICD Diagnosis code	IEN;ICD9(
ICD Procedure code	IEN;ICD0(

4 Short Description from the SDO file (CPT or ICD)

ARY(Activation Date,0) = Lexicon Expression

$$PERIOD This is the number of activation periods found:
Same as output variable ARY(0)
or
-1 ^ error message

$$NXSAB^LEXU(SAB,Rev) ICR 5679

This API returns the next Source Abbreviation found in the CODING SYSTEMS file 757.03 using the ASAB cross-reference. It is the equivalent of $O(^LEX(757.03,"ASAB",SAB)).

Input

SAB This is either a Source Abbreviation (SAB) from the .01 field of file 757.03 or null value to find the first SAB.

Rev This is a reverse flag (optional). If set to 1 the API will find the next Source Abbreviation in the reverse order (aka, previous SAB).

Output

$$NXSAB This is either the next Source Abbreviation (SAB) previous SAB (when reverse flag set to 1) or null if the input parameter SAB has no next SAB.

$$CSDATA^LEXU(Code,Sys,Date,.ARY) ICR 5679

This entry point returns information about a code from a specified coding system. It is intended to be similar to ICDDATA^ICDXCODE except it is not limited to ICD coding systems.

Input

Code This is a code found in file #757.02 (CODES file).

Sys This is a pointer to the CODING SYSTEMS file #757.03 that identifies the coding system that CODE belongs to. It is important to specify the coding system because some codes overlap various coding systems.

Date This is the date that will be used to determine the status of the code in the CODE input parameter. The status will either be Inactive or Active.

Output

.ARY This is the name of a local array passed by reference that will contain the output.

ARY()

Lexicon Data

ARY("LEX",1)	IEN ^ Preferred Term
ARY("LEX",2)	Status ^ Effective Date
ARY("LEX",3)	IEN ^ Major Concept Term
ARY("LEX",4)	IEN ^ Fully Specified Name
ARY("LEX",5)	Hierarchy (if it exists)
ARY("LEX",6,0)	Synonyms/Other Forms
ARY("LEX",6,1)	Synonym #1
ARY("LEX",6,n)	#n
ARY("LEX",7,0)	Semantic Map
ARY("LEX",7,1,1)	Class ^ Type (internal)
ARY("LEX",7,1,2)	Class ^ Type (external)
ARY("LEX",7,1,n)	#n
ARY("LEX",7,1,n)	#n
ARY("LEX",8)	Deactivated Concept Flag

Coding System Data

ARY("SYS",1)	IEN
ARY("SYS",2)	Short Name
ARY("SYS",3)	Age High
ARY("SYS",4)	Age Low
ARY("SYS",5)	Sex
ARY("SYS",6,0)	MDC/DRG Pairing
ARY("SYS",6,1,1)	MDC
ARY("SYS",6,1,2)	DRGs
ARY("SYS",6,n,1)	#n
ARY("SYS",6,n,2)	#n
ARY("SYS",7)	Complication/Comorbidity
ARY("SYS",8)	MDC13
ARY("SYS",9)	MDC24
ARY("SYS",10)	MDC24
ARY("SYS",11)	Unacceptable as Principal Dx
ARY("SYS",12)	Major O.R. Procedure
ARY("SYS",13)	Procedure Category
ARY("SYS",14,0)	Description

ARY("SYS",14,1)   Text 1
ARY("SYS",14,n)   #n

Each data element will be in the following format:

ARY(ID,SUB) = Data
ARY(ID,SUB,"N") = Name of Subscript

Where

ID   Identifier; "LEX" for Lexicon "SYS" for Coding System data

SUB   Numeric Subscript

DATA   This may be a value if it applies and is found, null it it applies and is not found, N/A if it does not apply.

NAME   This is the common name given to the data element

Example:

```
S X=$$CSDATAˆLEXU("C18.6",30,3141010,.ARY)
X=1
ARY("LEX",1)="267081ˆMalignant neoplasm of descending colon"
ARY("LEX",1,"N")="IEN ˆ Preferred Term"
ARY("LEX",2)="1ˆ3131001"
ARY("LEX",2,"N")="Status ˆ Effective Date"
ARY("LEX",3)="267081ˆMalignant neoplasm of descending colon"
ARY("LEX",3,"N")="IEN ˆ Major Concept Term"
ARY("LEX",4)=""
ARY("LEX",4,"N")="IEN ˆ Fully Specified Name"
ARY("LEX",5)=""
ARY("LEX",5,"N")="Hierarchy (if exists)"
ARY("LEX",6,0)=0
ARY("LEX",6,0,"N")="Synonyms and Other Forms"
ARY("LEX",7,0)=1
ARY("LEX",7,0,"N")="Semantic Map"
ARY("LEX",7,1,1)="6ˆ47"
ARY("LEX",7,1,1,"N")="Semantic Class ˆ Semantic Type (internal)"
ARY("LEX",7,1,2)="Diseases/Pathologic ProcessesˆDisease or Syndrome"
ARY("LEX",7,1,2,"N")="Semantic Class ˆ Semantic Type (external)"
ARY("LEX",8)=""
ARY("LEX",8,"N")="Deactivated Concept Flag"
ARY("SYS",1)=501148
ARY("SYS",1,"N")="IEN"
ARY("SYS",2)="Malignant neoplasm of descending colon"
ARY("SYS",2,"N")="Short Name"
ARY("SYS",3)=""
ARY("SYS",3,"N")="Age High"
ARY("SYS",4)=""
ARY("SYS",4,"N")="Age Low"
ARY("SYS",5)=""
ARY("SYS",5,"N")="Sex"
ARY("SYS",6,0)=0
ARY("SYS",6,0,"N")="MDC/DRG"
ARY("SYS",7)=""
ARY("SYS",7,"N")="Complication/Comorbidity"
ARY("SYS",8)=""
ARY("SYS",8,"N")="MDC13"
ARY("SYS",9)=""
ARY("SYS",9,"N")="MDC24"
ARY("SYS",10)=""
ARY("SYS",10,"N")="MDC24"
ARY("SYS",11)=""
ARY("SYS",11,"N")="Unacceptable as Principal Dx"
ARY("SYS",12)="N/A"
ARY("SYS",13)="N/A"
ARY("SYS",14,0)=1
ARY("SYS",14,0,"N")="Description"
ARY("SYS",14,1)="MALIGNANT NEOPLASM OF DESCENDING COLON"
```

$$CSDATA This is a boolean value:

$$CSDATA = 1	TRUE	If the API is successful (fully or partial)
$$CSDATA = 0	FALSE	If the API is unsuccessful

or

-1 ^ error message

$$MAX^LEXU(Sys) ICR 5679

Input

Sys (Required) This is a pointer to the CODING SYSTEM file #757.03.

Output

$$MAX This is the value stored in the SEARCH THRESHOLD field #12 of the CODING SYSTEMS file 757.03. This value, along with the value of $$FREQ^LEXU, can be used to evaluate if a search should continue or be further refined.

$$FREQ The maximum number or records to inspect during a search based on the input text string.

$$MAX The maximum number of records to consider for a coding system before refining the search.

$$FREQ^LEXU(Text) ICR 5679

Input

Text (Required) This is a text string intended as the input for a Lexicon search.

Output

$$FREQ This is the maximum number of records that must be inspected during a Lexicon search to find matching entries for the input search text.

If this number is too high, applications should consider re-prompting the user to either continue with the search or to further refine the search.

$$PAR^LEXU(Text,.ARY) ICR 5679

Input

Text — (Required) This is a text string intended as the input for a Lexicon search and will be parsed into words and placed in a local array.

.ARY — Local array, passed by reference

Output

$$PAR — This is the number of words parsed from the text.

ARY — This is a local array containing the words parsed from the input text. The words are arranged in the order they are found in the text; in alphabetical order; and in the order they are used in the Lexicon search (frequency order)

Total words found

```
ARY(0)=#
```

Words listed in the order they appear in the input variable

```
ARY(1)=WORD1
ARY(n)=WORDn
```

Words listed alphabetically with the frequency of occurrence

```
ARY("B",WORDA)=# (Frequency of Use)
ARY("B",WORDB)=#
```

Words listed in the frequency order (the order used by the search)

```
ARY("L",1)=SEARCHWORD1
ARY("L",n)=SEARCHWORDn
```

Special Variables used by the parsing logic:

LEXIDX — If this variable is set, the text will use the parsing logic used for setting cross-references. **This is the default method.**

LEXLOOK If this variable is set, the text will use the parsing logic used for setup up for a Lexicon search (lookup).

$$CAT^LEXU(Code) ICR 5679

This entry point returns the category for a ICD-10 Diagnosis code.

Input

Code This is an ICD-10 Diagnosis code or sub-category.

Output

$$CAT This is the category to which the code or sub-category belongs.

$$RECENT^LEXU(SAB) ICR 5679

This API returns a boolean valued flag to indicate if the coding system identified by the source abbreviation has been recently updated with in a 90 day window (looking forward by 30 days and to the past by 60 days). This is to evaluate if a coding system was updated by a quarterly patch, and may be used to trigger an code set update protocol.

Input

SAB This is either a 3 character source abbreviation taken from the .01 field of the CODING SYSTEM file 757.03 or a pointer to the CODING SYSTEM file 757.03.

Output

$$RECENT This is a boolean valued flag

1 Indicates the coding system has been recently updated by a quarterly update by looking 30 days into the future and 60 days into the past for a changed made to the coding system

2 Indicates the coding system has NOT been recently updated by a quarterly patch

$$RUPD^LEXU(SAB) ICR 5679

This API returns a date the coding system identified by the source abbreviation has been updated based on a recent date (TODAY+3). This is to evaluate if a coding system was updated by a quarterly patch, and may be used to trigger an code set update protocol.

Input

SAB	This is either a 3 character source abbreviation taken from the .01 field of the CODING SYSTEM file 757.03 or a pointer to the CODING SYSTEM file 757.03.

Output

$$RUPD	This is date found for the last update to a coding system based on a recent date (TODAY+30)

$$LUPD^LEXU(SAB,DATE) ICR 5679

This API returns the last date the coding system identified by the source abbreviation has been updated based on the date supplied (optional). If no date is supplied, the last date will be returned.

Input

SAB	This is either a 3 character source abbreviation taken from the .01 field of the CODING SYSTEM file 757.03 or a pointer to the CODING SYSTEM file 757.03.
date	This is a date to use to retrieve the last update for a coding system (optional)

Output

$$LUPD	This is date found for the last update to a coding system based on a recent passed or the last date updated if a date is not passed.

$$EXP^LEXU(IEN) ICR 6265

This API returns Display Text (.01 field) of the EXPRESSIONS file #757.01.

Input

IEN	This is an Internal Entry Number to the EXPRESSIONS file #757.01.

Output

$$EXP	This is the Display Text taken from the .01 field of the EXPRESSIONS file 757.01.

EXPS^LEXU(IEN,CDT,.ARY) ICR 6265

This API returns the display text of an expression from the EXPRESSIONS file #757.01 and active codes associated with the expression.

Input

IEN	This is an Internal Entry Number to the EXPRESSIONS file

	#757.01.
CDT	This is the date that will be used to determine whether the code is active or inactive. If not passed, TODAY's date will be used.
.ARY	Local array, passed by reference

Output

ARY Local array passed by reference with the following output format:

```
ARY(IEN)=EXP
ARY(IEN,SRC)=COD ^ NOM ^ VAR
```

Where:

IEN	Internal Entry number in the EXPRESSION file 757.01
EXP	The Display Text from the EXPRESSION file 757.01
SRC	A Coding System (pointer to CODING SYSTEMS file 757.03)
COD	A code taken from the CODES file 757.02
NOM	Coding Nomentclature from the CODING SYSTEMS file #757.03, examples: ICD-10-CM ICD-10-PCS SNOMED CT
VAR	Variable pointer to a national coding file

CODE^LEXU(CODE,SRC,CDT,.ARY,OUT) ICR 6265

This API returns information about a code in a local array passed by reference.

Input

CODE	This is a Classification Code from the CODES file #757.02 (Required)
SRC	This is either a Source Abbreviation (.01) or pointer to file 757.03 (Required)
CDT	This is a date in FileMan format used to determine status, default TODAY
OUT	This is an Output flag (Optional)

0	Do not Display array, leave local array (default)
1	Display array , kill local array

Output

.ARY Local Array, passed by reference

Codes

```
ARY("CO")="Code"
ARY("CO",n)=<code>
ARY("CO","B",<code>,n)=""
ARY("CO",n,"I")= 6 piece "^" delimited string
```

1	Status
2	Effective Date
3	Initial Activation Date
4	Pointer to CODES file #757.02
5	Coding System Nomenclature
6	Coding System

```
ARY("CO",n,"VA")= 4 piece "^" delimited string
```

1	Status
2	Effective Date
3	VA File Number
4	Variable Pointer to VA File

Diagnostic Categories (ICD-10-CM only)

```
ARY("DC")="Diagnostic Categories"
ARY("DC",1)=<category>
ARY("DC",1,"I")= 4 piece "^" delimited string
```

1	Status
2	Effective Date
3	Category Name
4	Pointer to CHARACTER POSITIONS file #757.033

Procedure Characters Positions (ICD-10-PCS only)

Where n is a character position number 1-7

```
ARY("CP")="Procedure Characters"
ARY("CP","I")=<code>
ARY("CP",n)=<character position 1-n>
ARY("CP",n,"I")= 4 piece "^" delimited string
```

1 Status
2 Effective Date
3 Name
4 Pointer to CHARACTER POSITIONS file #757.033

Terms

Subscript SUB can be:

PF	Preferred Term
FS	Fully Specified Term
MC	Major Concept
SY	Synonyms
LV	Lexical Variants
OR	Orphan Text

ARY(SUB)=type
ARY(SUB,n)=<expression>
ARY(SUB,n,"I")= 4 piece "^" delimited string

1 Status
2 Type
3 Current/Retired
4 Pointer to EXPRESSIONS file #757.01

ARY(SUB,n,"ID")="Designation ID"
ARY(SUB,n,"ID",n)<designation ID>
ARY(SUB,n,"ID",n,"I")= 4 piece "^" delimited string

1 Status
2 Coding System
3 Hierarchy
4 Pointer to DESIGNATION CODE subfile #757.118

ARY(SUB,n,"SK")="Supplemental Keywords"
ARY(SUB,n,"SK",n)=<keyword>
ARY(SUB,n,"SK",n,"I")= 4 piece "^" delimited string

1 Status
2 Not used
3 Not used
4 Pointer to SUPPLEMENTAL subfile #757.18

Mappings

```
ARY("MP")="Mapping"
ARY("MP",n)=<map to target code>
ARY("MP",n,"I")= 6 piece "^" delimited string

   1   Status
   2   Effective
   3   Coding System
   4   Pointer to MAPPINGS file #757.33
   5   Match (full/partial)
   6   Source Code
   7   Source Coding System
```

Subsets

```
ARY("SB")="Subsets"
ARY("SB",n)=<subset>
ARY("SB",n,"I")= 5 piece "^" delimited string

   1   Status
   2   Pointer to SUBSET file #757.21
   3   Pointer to EXPRESSION file #757.01
   4   Pointer to SUBSET DEFINITION file #757.2
   5   Subset ID
```

Source

```
ARY("SR")="Source"
ARY("SR",n)=<source abbreviation>
ARY("SR",n,"I")= 4 piece "^" delimited string
ARY("SR","B",<source>,n)=""

   1   Source Abbreviation
   2   Source Nomenclature
   3   Source Title
   4   Pointer to CODING SYSTEMS file #757.03
```

TERM^LEXU(IEN,CDT,.ARY,OUT) ICR 6265

This API will return information about a term in a local array passed by reference.

Input

IEN	This is an internal entry number of an Expression in the EXPRESSIONS file #757.01 (required)
CDT	This is a date in FileMan format used to determine status, default TODAY
OUT	This is an Output flag (Optional)

0 Do not Display array, leave local array (default)
1 Display array , kill local array

Output

.ARY Local Array, passed by reference

Codes

```
ARY("CO")="Code"
ARY("CO",n)=<code>
ARY("CO","B",<code>,n)=""
ARY("CO",n,"I")= 6 piece "^" delimited string
```

1 Status
2 Effective Date
3 Initial Activation Date
4 Pointer to CODES file #757.02
5 Coding System Nomenclature
6 Coding System

```
ARY("CO",n,"VA")= 4 piece "^" delimited string
```

1 Status
2 Effective Date
3 VA File Number
4 Variable Pointer to VA File

Diagnostic Categories (ICD-10-CM only)

```
ARY("DC")="Diagnostic Categories"
ARY("DC",1)=<category>
ARY("DC",1,"I")= 4 piece "^" delimited string
```

1 Status

2	Effective Date
3	Category Name
4	Pointer to CHARACTER POSITIONS file #757.033

Procedure Characters Positions (ICD-10-PCS only)

Where n is a character position number 1-7

```
ARY("CP")="Procedure Characters"
ARY("CP","I")=<code>
ARY("CP",n)=<character position 1-n>
ARY("CP",n,"I")= 4 piece "^" delimited string
```

1	Status
2	Effective Date
3	Name
4	Pointer to CHARACTER POSITIONS file #757.033

Terms

Subscript SUB can be:

MC	Major Concept
FS	Fully Specified Term
SY	Synonyms
LV	Lexical Variants
OR	Orphan Text

```
ARY(SUB)=type
ARY(SUB,n)=<expression>
ARY(SUB,n,"I")= 4 piece "^" delimited string
```

1	Status
2	Type
3	Current/Retired
4	Pointer to EXPRESSIONS file #757.01

```
ARY(SUB,n,"ID")="Designation ID"
ARY(SUB,n,"ID",n)<designation ID>
ARY(SUB,n,"ID",n,"I")= 4 piece "^" delimited string
```

1. Status
2. Coding System
3. Hierarchy
4. Pointer to DESIGNATION CODE subfile #757.118

```
ARY(SUB,n,"SK")="Supplemental Keywords"
ARY(SUB,n,"SK",n)=<keyword>
ARY(SUB,n,"SK",n,"I")= 4 piece "^" delimited string
```

1. Status
2. Not used
3. Not used
4. Pointer to SUPPLEMENTAL subfile #757.18

Mappings

```
ARY("MP")="Mapping"
ARY("MP",n)=<map to target code>
ARY("MP",n,"I")= 6 piece "^" delimited string
```

1. Status
2. Effective
3. Coding System
4. Pointer to MAPPINGS file #757.33
5. Match (full/partial)
6. Source Code
7. Source Coding System

Subsets

```
ARY("SB")="Subsets"
ARY("SB",n)=<subset>
ARY("SB",n,"I")= 5 piece "^" delimited string
```

1. Status
2. Pointer to SUBSET file #757.21
3. Pointer to EXPRESSION file #757.01
4. Pointer to SUBSET DEFINITION file #757.2
5. Subset ID

Source

```
ARY("SR")="Source"
ARY("SR",n)=<source abbreviation>
ARY("SR","B",<source>,n)=""
ARY("SR",n,"I")= 4 piece "^" delimited string
```

1	Source Abbreviation
2	Source Nomenclature
3	Source Title
4	Pointer to CODING SYSTEMS file #757.03

$$PREF^LEXU(COD,SAB,CDT) ICR 6265

This API returns the preferred term for a code and coding system based on date.

Input

COD	This is a code taken from the CODES file 757.02
SAB	Source Abbreviation from the .01 field of the CODING SYSTEMS file #757.03.
CDT	This is the date that will be used to determine whether the code is active or inactive. If not passed, TODAY's date will be used.

Output

$$PREF This is a two piece "^" delimited string:

IEN ^ EXP

Where

IEN	This is the Internal Entry Number for the preferred term in file 757.01.
EXP	This is the display text of the preferred term in file 757.01

or

-1	if no preferred term is found for the code

$$IENS^LEXU(CODE,.ARY,CDT) ICR 6265

This API returns all of the pertinent Intenal Entryh Numbers (IENS) for a code. code based on date.

Input

COD This is a code from one of the coding systems in the Lexicon.

. ARY This is an input array passed by reference. It will be killed and rebuilt.

CDT This the Versioning Date (default TODAY) used to extract data.

Output

$$IENS This is the number of entries found in the Lexicon for Code.

.ARY This is the output array passed by reference. It will be killed and rebuilt as follows.

ARY(0) - 3 Piece "^" delimited string

1 Number of Entries in the Lexicon for Code
2 Code
3 Date used to extract data

ARY(#,757) - 2 Piece "^" delimited string

1 IEN to the MAJOR CONCEPT MAP file #757
2 IEN to the Major Concept Expression in File #757.01

ARY(#,757.001) - 3 Piece "^" delimited string

1 IEN to the CONCEPT USAGE file #757.001
2 Originating Value
3 Frequency

ARY(#,757.01) - 8 Piece "^" delimited string

1 IEN to the EXPRESSION file #757.01
2 Expression Type
3 Expression Form
4 Expression Deactivation Flag
5 External Expression Type
6 External Expression Form
7 External Deactivation Flag
8 Expression

ARY(#,757.01,7,CD) - 5 Piece "^" delimited string

Where CD is a Designation Code

1 IEN of the DESIGNATION CODE sub-file #757.118
2 Pointer to the CODING SYSTEM file #757.03

3 Pointer to the SNOMED CT HIERARCHY file #757.018
4 External nomenclature for CODING SYSTEM
5 External name of SNOMED CT Hierarchy

ARY(#,757.02) - 5 Piece "^" delimited string

1 IEN to the CODE file #757.02
2 Code from CODE file #757.02
3 Initial Activation Date in the Lexicon
4 Status in the Lexicon
5 Status Effective Date in the Lexicon

ARY(#,757.02,4,EFF) - 2 Piece "^" delimited string

Where EFF is the effective date for a Status

1 IEN of the ACTIVATION STATUS subfile #757.28
2 STATUS (1=Active, 0=Inactive)

ARY(#,757.03) - 3 Piece "^" delimited string

1 IEN to the CODING SYSTEM file #757.03
2 Source Abbreviation from file #757.03
3 Source Nomenclature from file #757.03

ARY(#,757.1,#) - 6 Piece "^" delimited string (multiple)

1 IEN to the SEMANTIC MAP file #757.1
2 IEN to the MAJOR CONCEPT MAP file #757
3 IEN to the SEMANTIC CLASS file #757.11
4 IEN to the SEMANTIC TYPE file #757.12
5 Semantic Class (external)
6 Semantic Type (external)

ARY(#,"VA",SR) - 6 Piece "^" delimited string (multiple)

Where SR is a pointer to the CODING SYSTEM file 757.03

1 Variable Pointer to a VA National File 80, 80.1 or 81
2 Code from VA file
3 Coding System Nomenclature
4 Initial Activation Date in the VA file
5 Status in the VA file
6 Status Effective Date in the VA file

Example

```
ARY(0)="2^250.01^3150101"
```

ARY(1,757)="7006^33586"

ARY(1,757.001)="7006^4^4"

ARY(1,757.01)="33586^1^1^ ^Major Concept^ Major Concept^ ^Diabetes Mellitus Type I"

ARY(1,757.02)="316386^250.01^2781001^0^3041001"

ARY(1,757.02,4,2781001)="1^1"

ARY(1,757.02,4,3041001)="2^0"

ARY(1,757.03)="1^ICD^ICD-9-CM"

ARY(1,757.1,1)="10167^7006^6^47^Diseases/Pathologic Processes^Disease or Syndrome"

ARY(1,"VA",1)="851;ICD9(^250.01^ICD-9-CM^ 2781001^1^ 2781001"

ARY(2,757)="182207^331780"

ARY(2,757.001)="182207^4^4"

ARY(2,757.01)="331780^1^1^^Major Concept^Major Concept^ ^Diabetes Mellitus without mention of Complication, type i [Juvenile type], not stated as Uncontrolled"

ARY(2,757.02)="327553^250.01^3041001^1^3041001"

ARY(2,757.02,4,3041001)="1^1"

ARY(2,757.02,4,3151001)="2^0"

ARY(2,757.03)="1^ICD^ICD-9-CM"

ARY(2,757.1,1)="259374^182207^6^47^Diseases/Pathologic Processes^Disease or Syndrome"

ARY(2,"VA",1)="851;ICD9(^250.01^ICD-9-CM^ 2781001^ 1^ 2781001"

$$SOS^LEXU(IEN,.ARY,SYN) ICR 6265

This API returns a local array (passed by reference) of codes for an Expression. These codes may be active or inactive.

Input

IEN This is an Internal Entry Number to the EXPRESSIONS file #757.01.

.ARY This is a local array passed by reference.

SYS Boolean flag to return codes for the synonyms of the expression

0 Don’t return the synonym codes (default)
1 Returen synonym codes

Output

$$SOS This is the number of codes found for an expression, both active

and inactive.

.ARY This is a local array passed by reference with the following format:

ARY(IEN)	IEN is from file #757.01 (same as X)
ARY(IEN,0)	Number of Codes Found ARY(IEN,#)
ARY(IEN,#)	# is a sequence number for an entry. Each entry consist of a 13 Piece "^" delimited string

1	Code
2	Coding System Nomenclature
3	Coding System Source Abbreviation
4	Code Status
5	Code Active Date
6	Code Inactive Date
7	Expression Status
8	Expression Active Date
9	Expression Inactive Date
10	Expression Variable Pointer
11	Code Variable Pointer
12	Coding System Variable Pointer
13	National File Variable Pointer (if it exist)

The array has two indexes:

ARY(LEXEIEN,"B",(CODE_" "),#)=Code_"^"_Nomenclature
ARY(LEXEIEN,"C",SOURCE,#)=Code_"^"_Nomenclature

$$EXM^LEXU(TEXT,.ARY,DF,MC) ICR 6265

This API returns IENs in a local array of the Expressions in the EXPRESSIONS file #757.01 that match the input text exactly.

Input

TEXT This is the Text to Search for (required)

.ARY This is a local array passed by reference.

DF This is a Boolean Flag indicating whether to include or exclude Deactivated Terms (optional)

1	Include deactivated terms
0	Do not include deactivated terms (default)

MC This is a Boolean Flag to include Major Concepts only (optional)

1	Include Major Concepts ONLY in the array

0 Include all expressions found in the array; Major Concepts, Synonyms, Lexical Variants and Fully Specified Names (default)

Output

$$EXM This is the number of Exact Match terms found.

.ARY This is a local array passed by reference containing the IENs of the expressions that match the input text exactly.

LEX(0) This is 2 a piece "^" dilimited string

1 Total Exact Matches found
2 Text Searched for

LEX(#) This is a 5 piece "^" dilimited string

1 IEN of Exact Match Expression
2 IEN of Major Concept for Expression
3 Type of Exact Match Expression (internal)
4 Deactivation Flag (internal)
5 Type of Exact Match Expression (external)

$$SUBSETS^LEXU(CODE,SRC,.ARY) ICR 6265

This API returns the names of the subsets for which a code is assigned.

Input

CODE This is a valid classification code from one of the coding systems in the Lexicon (see the CODING SYSTEMS file #757.03)

SRC This is coding system for which the code belongs. It can either be the Source Abbreviation (SAB) found in the .01 field of the CODING SYSTEMS file #757.03 or a pointer to the CODING SYSTEMS file #757.03

.ARY This is an optional local array passed by reference.

LEX(<sub>) = 4 Piece "^" delimited string

1 Subset Name
2 Subset Definition IEN file 757.2
3 Subset IEN file 757.21
4 Expression IEN file 757.01

Where <sub> is a three character identifier of a subset, that when appended with a leading "A" becomes the name of the index used for searches.

Output

$$SUBSETS This is a 2 or more (variable) Piece "^" delimited string containing the number of subsets found for a code appended by the subset identifiers.

1 Number of Subsets found
2 Subset Identifier #1
3 Subset Identifier #2
4 Subset Identifier #n

Example:

$$SUBSET = "4^CLF^DIS^PLS^SCT^"

.ARY This is an optional local array passed by reference in the following format:

LEX(<sub>) = 4 Piece "^" delimited string

1 Subset Name
2 Subset Definition IEN file 757.2
3 Subset IEN file 757.21
4 Expression IEN file 757.01

Where <sub> is a three character identifier of a subset, that when appended with a leading "A" becomes the name of the index used for searches.

Example:

```
ARY("CLF")="Clinical Findingsˆ7000039ˆ70071537ˆ73
ARY("DIS")="Disorderˆ7000002ˆ7150923ˆ7301845"
ARY("PLS")="PL Standardˆ7000038ˆ70175664ˆ7301845"
ARY("SCT")="SNOMED CTˆ7000037ˆ7457760ˆ7301845"
```

7.1.3 LEXCODE

EN^LEXCODE(Code,Date) ICR 1614

This entry point allows an application to retrieve the internal entry numbers (IENs) and the text (as the FileMan Y variable) of the expressions associated with a classification code.

Input

Code (Required) Classification Code taken from the CODES file #757.02

Date (Optional) The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used.

Output

LEXS	Local Array

LEXS
LEXS(0)=Code
LEXS(SAB,0)=Number of Terms found for SAB
LEXS(SAB,0,"SAB")=Source Nomenclature ^ Name
LEXS(SAB,#)=IEN file 757.01^Display Text (term)

Example of returned array LEXS using code V62.4

LEXS(0)="V62.4"
LEXS("DS4",0)=1
LEXS("DS4",0,"SAB")="DSM-IV^Diagnostic & Statistical Manual of Mental Disorders"
LEXS("DS4",1)="303722^Acculturation Problem"
LEXS("ICD",0)=5
LEXS("ICD",0,"SAB")="ICD-9-CM^International Classification of Diseases, Diagnosis"
LEXS("ICD",1)="111638^Social maladjustment"
LEXS("ICD",2)="29696^Cultural Deprivation"
LEXS("ICD",3)="100676^Psychosocial Deprivation"
LEXS("ICD",4)="303722^Acculturation Problem"
LEXS("ICD",5)="111507^Social Behavior

### EXP^LEXCODE(Code,Source,Date)			ICR 5680

This entry point allows an application to retrieve an active preferred term for a coding system on the date provided.

Input

Code	(Required) Code taken from the Codes file #757.02.

Source	(Required) This is either the three character Source Abbreviation or a pointer to the Coding Systems file #757.03. Source abbreviations (SAB) may be found in Appendix A or the “ASAB” cross-reference if the Coding Systems file #757.03. It is used to distinguish between different coding systems with the same code (i.e., the code 300.01 occurs in both the ICD-9-CM and DSM-IV coding systems).

Date	(Optional) The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used.

Output

$$EXP 2 Piece "^" delimited string containing

Either:

1 Pointer to Expression file #757.01
2 Display Text (Expression)

or:

1 -1 Error Message

7.1.4 LEX10CS (ICD-10 Specific)

$$ICDSRCH^LEX10CS(Text,.ARY,Date,Len,Fil) ICR 5681

This entry point searches for an ICD code and returns active ICD codes found up to the number defined by the input parameter Length. If the date is before the ICD-10 implementation date then the search will be conducted for ICD-9 codes. If the date passed is on or after the ICD-10 implementation date then the search will be conducted for ICD-10 codes.

Input

Text Text or Code to search for. (Required)

.ARY This is a local output array passed by reference. (Required)

Date The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used. (Optional)

Len This specifies the length of the list of codes. Default value is 30. (Optional)

Fil This is a filter to apply to the search to screen out unwanted entries. It is MUMPS code in the form of a valid IF statement. It is the same as FileMan's DIC("S"). (Optional)

Output

$$ICDSRCH 2 Piece "^" delimited string the success/error conditions

A Positive number for successful search
not exceeding the Length of the list.

A Negative number for an unsuccessful search
or a search condition

-1^No codes found

No codes found and local array not returned

-2^Too many items found, please refine search

The list exceeds the number indicated by the list length. However, those found up to the list length will be returned in the array and the list will be marked as a pruned list.

ARY Output Array passed by reference containing the codes found

ARY(0)=# found ^ Pruning Indicator

ARY(1)=CODE ^ status effective date

ARY(1,“IDL”)=ICD Dx long description (if code)

ARY(1,“IDL”,1)=ICD Dx IEN ^ effective date

ARY(1,“IDS”)=ICD Dx short description (if code)

ARY(1,“IDS”,1)=ICD Dx IEN ^ effective date

ARY(1,“LEX”)=Lexicon expression

ARY(1,“LEX”,1)=Lexicon IEN ^ effective date

ARY(1,“SYN”,1)=synonym #1

ARY(1,"SYN",m)=Synonym #m

Pruning Indicator: If the second piece of ARY(0) is greater than 0, then the list has been pruned, limiting the list to the length specified by the input parameter Len.

$$DIAGSRCH^LEX10CS(Text,.ARY,Date,Len,Fil) ICR 5681

This entry point searches for an ICD code and returns active ICD-10 codes found up to the number defined by the input parameter Length. This search is similar to $$ICDSRCH^LEX10CS except it searches only ICD-10 codes.

Input

Text	Text or Code to search for. It is the same as FileMan's X. (Required)
.ARY	This is a local output array passed by reference. (Required)
Date	The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date

will be used. (Optional)

Len — This specifies the length of the list of codes. (Optional)

Fil — This is a filter to apply to the search to screen out unwanted entries. It is MUMPS code in the form of a valid IF statement. It is the same as FileMan's DIC("S"). (Optional)

Output

$$DIAGSRCH — 2 Piece "^" delimited string the success/error conditions

A Positive number for successful search not exceeding the Length of the list.

A Negative number for an unsuccessful search or a search condition

-1^No codes found

No codes found and local array not returned

-2^Too many items found, please refine search

The list exceeds the number indicated by list length. However, those found up to the list length will be returned in the array and the list will be marked as a pruned list.

ARY — Output Array passed by reference containing the codes found

ARY(0)=# found ^ Pruning Indicator

ARY(1)=CODE or Category ^ code status effective date

ARY(1,"CAT")=Category Name

ARY(1,“IDL”)=ICD Dx long description (if code)

ARY(1,“IDL”,1)=ICD Dx IEN ^ effective date

ARY(1,“IDS”)=ICD Dx short description (if code)

ARY(1,“IDS”,1)=ICD Dx IEN ^ effective date

ARY(1,“LEX”)=Lexicon expression

ARY(1,“LEX”,1)=Lexicon IEN ^ effective date

ARY(1,“SYN”,1)=synonym #1

ARY(1,"SYN",m)=Synonym #m

Pruning Indicator: If the second piece of ARY(0) is greater than 0, then the list has been pruned, limiting the list to the length specified by the input parameter Len.

Pruning the Output

The DIAGSRCH API builds an array of terms linked to ICD-10 codes. This API employs a two-staged search as follows:

Stage 1: Initial Search

It first checks to see if the input text string is a code or partial code. If it is, then a “lookup by code” begins and all codes that equal or begin with the input text are placed in the array. If the input text is not a code, then a “lookup by text” begins and all terms found that are linked to an ICD-10 code are placed in the array.

Stage 2: Search Pruning

If the search list does not exceed a predefined number of matches (default if unspecified to be 30), then the list will be passed back to the calling application. If the search list exceeds a predefined number of matches, then the list will be pruned using ICD-10-CM categories/sub-categories.

The rightmost character of each code in the original list will be removed. If the resulting text is either a diagnosis category or a sub-category then the category or sub-category will be added to the list and the code will be removed (category replaces code on the list). If there is no category or sub-category the code will remain on the list.

The list length will be checked again. If the new list length is less than the limit then the list will passed back to the calling application. If the new list length is not less than the limit then the pruning continues, character by character, until number of items on the list fall below the limit.

For example, suppose the limit is set to 6 and the search returns the following codes:

A12 A12.0 A12.45 A12.46 A13.49 E13
E13.31 E14.45 E14.567 S34.203 S34.204 S34.205

The search returned 12 codes and exceeds the limit of 6, so search results will be pruned returning the following codes:

A12 A12.4 A13.4 E13 E13.3 E14.4
E14.5 E14.56 S34.20

The pruned search returns 9 codes which still exceeds the limit of 6, so the pruning operation will be repeated until the limit does not exceed 6:

A12	A13	E13	E14	E14.5	S34.2

The additional pruning returns search results that is now equal to or less than the limit of 6. These categories/codes are placed in the array and returned to the calling application to present to the user. The calling application will issue all prompts and help text for user interaction.

$$PCSDIG^LEX10CS(Frag,Date) ICR 5681

This entry point takes an ICD-10-PCS code, full or a partial (code fragment), and returns a list of all possibilities for the next character, with any definitions and examples available. If a full code is passed (7 characters), it will return the code's long description and status.

Input

Frag	This is an ICD-10-PCS Code (7 characters) or a fragment of an ICD-10-PCS Code (less that 7 characters). (Required)
Date	The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used. (Optional)

Output

$$PCSDIG This is a boolean value:

$$PCSDIG = 1	When the input code fragment is valid or null
$$PCSDIG = 0	When the input code fragment is invalid

LEXPCDAT Output local array containing characters in the next position and the character descriptions.

If the input parameter Frag is a valid code fragment or null, the return value of LEXPCDAT will be 1 and the following array will be returned.

```
LEXPCDAT("NEXLEV ,char1, DESC )=char1 description
LEXPCDAT("NEXLEV ,char2, DESC )=char2 description
LEXPCDAT("NEXLEV ,charn, DESC )=charn description
```

If the input parameter Frag is a valid code, the return value of LEXPCDAT will be 1 and the following array will be returned.

```
LEXPCDAT("PCSDESC )=long description for code
LEXPCDAT("STATUS )=status_ ^ _effective date
```

If the input parameter Frag is not a valid code fragment or null and it is not a valid code, the return value of LEXPCDAT will be 0 and no array will be returned.

$$CODELIST^LEX10CS(Sys,Spc,.ARY,Date,Len,Fmt) ICR 5681

This entry point creates a list of active codes based on an input code mask and date and places the list in an array specified by the calling application.

Input

Sys — Coding system from the Coding Systems file #757.03. This can be a pointer, the .01 field or the abbreviated 3 character mnemonic (found on the ASAB cross-reference). (Required)

Spc — This is a code from the coding system or a code mask. Any character position can be occupied by a question mark "?" to allow any value in that character position. The trailing character may be an asterisk indicating any characters that follow are allowable. The following are all valid; C71.0, C71.*, C7?.0, or 02V?0*. (Required)

.ARY — This is a local output array passed by reference. (Required)

Date — The date against which the codes found by the search will be compared in order to determine whether the code is active or inactive. If not passed, TODAY's date will be used. (Optional)

Len — This specifies the length of the list of codes. Default value is 30. (Optional)

Fmt — List Format. A value of 1 returns a detailed listing in the array, includes the code, code IEN in file #757.02, the code s effective date, the expression, and the expression IEN in file #757.01. A value of 0 (zero) returns a brief listing in the array (codes only). Default value is 0 (zero). (Optional)

Output

$$CODELIST 2 Piece "^" delimited string containing

Either:

Piece	Meaning
1	Positive value for success
2	Number of Codes Found

or:

Piece	Meaning
1	Negative number for error or condition
2	Error Message or Condition

Example errors/conditions

-1	Coding system not specified (First parameter is missing)
-2	Invalid coding system/source abbreviation (First parameter not valid)
-3	No search specification (Second parameter missing)
-4	Insufficient search specification (Second parameter too short)
-5	Invalid search specification (Second parameter invalid)
-6	Number of matches exceeds specified limit (More matches found, only the number specified will be returned)

^TMP(SUB,$J, This is a global array subscripted as specified by the calling application, input parameter SUB. It contains a list of codes found in either a brief or detailed output..

Brief output array (Fmt = 0)

```
^TMP(SUB,$J,0)=Total n
^TMP(SUB,$J,1)=Code 1
^TMP(SUB,$J,2)=Code 2
^TMP(SUB,$J,n)=Code n
```

Detailed output array (Fmt = 1)

```
^TMP(SUB,$J,0)=Total n
^TMP(SUB,$J,1)=Code 1
^TMP(SUB,$J,1,1)=Variable Pointer 1 ^ Code 1 ^ Date
^TMP(SUB,$J,1,2)=Expression 1 IEN ^ Expression 1
^TMP(SUB,$J,2)=Code 2
^TMP(SUB,$J,2,1)=Variable Pointer 2 ^ Code 2 ^ Date
```

```
^TMP(SUB,$J,2,2)=Expression 2 IEN ^ Expression 2
^TMP(SUB,$J,n)=Code n
^TMP(SUB,$J,n,1)=Variable Pointer n ^ Code n ^ Date
^TMP(SUB,$J,n,2)=Expression n IEN ^ Expression n
```

Note: If the code is found in one of the VistA Code Set files controlled by a Standards Development Organization (SDO), then a variable pointer will be provided for that code in that file. Example of SDO controlled files include:

ICD DIAGNOSIS file #80
ICD OPERATION/PROCEDURE file #80.1
CPT file #81
DSM file #627.7

$$TAX^LEX10CS(Text,Src,Date,Sub,Ver)   ICR 5681

This entry point searches the input text and build an array of codes that qualify for a taxonomy.

Input

Text — This is a text string, a code or a code fragment to search for. (Required)

Src — This is a string of sources delimited by an "^" up arrow. The sources may be either a pointer to the CODING SYSTEM file 757.03, or a source abbreviation (found in the ASAB cross reference of file 757.03) (Required)

Using source pointers to file 757.03
"1^2^30^31"

Using source abbreviations
"ICD^ICP^10D^10P"

Date — This a date used processing versioned data. Also, when a versioned list is required (input parameter VER=1) it is used to suppress inactive codes from the list. (Optional, default is TODAY)

Sub — This is the name of a subscript to use in the ^TMP global (Optional). This allows for applications to put the data in their own namespace. It also allows for multiple search results to exist.

```
^TMP(LEXSUB,$J,
^TMP("LEXTAX",$J,    Default
```

Ver	This is a boolean flag that indicates if the search is to be versioned. If set to 1, only active codes will be returned based on the date in the Date input parameter. If no date, then TODAY is used. Default value is 0 (zero). (Optional) 0 Return active and inactive codes 1 Version, return active codes only

Output

$$TAX — This the number of codes found by the search or -1 ^ with an error message.

^TMP(SUB,$J, — This is the results of the search saved in the ^TMP global with the specified subscript arranged by source:

^TMP(SUB,$J,SRC,(CODE_" "),#)

5 piece "^" delimited string

1 Activation Date (can be a future date)
2 Inactivation Date (can be a future date)
3 Lexicon IEN to Expression File 757.01
4 Variable Pointer to a National file
5 Short Name from a National file

^TMP(SUB,$J,SRC,(CODE_" "),#,0)

2 piece "^" delimited string

1 Code (no spaces)
2 Lexicon Expression

7.1.5 LEX10CX (ICD-10 Specific)

EN^LEX10CX **ICR 5840**

This entry point is an interactive lookup where the input coding system and code are not known. There is no input variables for this API, however, the variable LEXSAB can be preset to a coding system (.01 field in file 757.03), else wise the user will be prompted for a coding system. This API will display a selection list of suggested ICD-10 codes that have a similar textual content as the user selected code and coding system. If no suggestions are available or the user does not make a selection, then the user will be prompted for a ICD-10 code.

Input

None

Output

X This is a 4 piece "^" delimited string representing the source code.

1 Lexicon IEN for file 757.02
2 Expression
3 Code in selected Coding System
4 Coding System nomenclature

or null if search fails

Examples:

```
X="119899^Tobacco Use Disorder^305.1^ICD-9-CM"
X="7078519^Diabetes mellitus type 2^44054006^SNOMED CT"
```

Y This is a 4 piece "^" delimited string representing the target ICD-10 code.

1 Lexicon IEN for file 757.02
2 Expression
3 ICD-10 Diagnostic Code
4 ICD-10-CM

or -1 if search fails

Examples:

```
Y="5003360^Nicotine Dependence, unspecified, Uncomplicated^
    F17.200^ICD-10-CM"
Y="5002666^Type 2 Diabetes Mellitus without Complications^
    E11.9^ICD-10-CM"
```

EN2^LEX10CX(Code,SAB) ICR 5840

This entry point is an interactive lookup where the input coding system and code are known and supplied as input parameters CODE and SAB. This API will display a selection list of suggested ICD-10 codes that have a similar textual content as the specified code (CODE) and coding system (SAB). If no suggestions are available or the user does not make a selection, then the user will be prompted for a ICD-10 code. The output for EN2 is the same as entry point EN.

Input

Code This is a code from the specified coding system identified by the input parameter SAB.

SAB This is the coding system abbreviation (a three character representation of the coding system taken from the .01 field of the CODING SYSTEMS file 757.03)

Output

Same as EN^LEX10CX

EN3^LEX10CX(Code,SAB,.ARY,Max) ICR 5840

This entry point is a silent lookup for suggested ICD-10 codes for a code in another coding system. The code (CODE) and coding system abbreviation (SAB) are passed as input parameters. This API will create an array of suggested ICD-10 codes that have a similar textual content as the specified code (CODE) and coding system (SAB)..

Input

Code	This is a code from the specified coding system identified by the input parameter SAB.
SAB	This is the coding system abbreviation (a three character representation of the coding system taken from the .01 field of the CODING SYSTEMS file 757.03)
.ARY	This is a local array, passed by reference. This API kill the array before it starts to populate it. (see output variable ARY)
Max	This is the maximum number of suggestions to return in the array (optional, default 100)

Output

ARY This is a local array, passed by reference:

```
ARY("X")     Input
ARY("Y",0)   Output   Number of Suggestions
ARY("Y",1)   Output   First Suggestion
ARY("Y",n)   Output   nth Suggestion

ARY("E")     Error Message
```

Both ARY("X") and ARY("Y",#) are 4 piece "^" delimited strings:

1 Internal Entry Number (IEN) file 757.01
2 Expression (file 757.01, field .01)
3 Code (file 757.02, field 1)
4 Nomenclature (file 757.03, field 1)
i.e., SNOMED CT, ICD-9-CM or ICD-10-CM

Example:

```
ARY("X")="331786^Diabetes with Ketoacidosis, type I [Juvenile type],
            Uncontrolled^250.13^ICD-9-CM"
ARY("Y",0)=3
ARY("Y",1)="5002587^Type 1 Diabetes Mellitus with Ketoacidosis without
              Coma^E10.10^ICD-10-CM"
ARY("Y",2)="5002588^Type 1 Diabetes Mellitus with Ketoacidosis with
              Coma^E10.11^ICD-10-CM"
ARY("Y",3)="5002623^Type 1 Diabetes Mellitus with
```

Hyperglycemia^E10.65^ICD-10-CM"

7.1.6 LEXSRC2

$$STATCHK^LEXSRC2(Code,Date,.ARY,Src) ICR 4083

This entry point allows an application to retrieve the status of a code (active or inactive) and the effective date of the status. An optional array may be included to provide additional information about the code.

Input

Code	(Required) Code taken from the Codes file 757.02 (ICD/CPT/DSM etc).
Date	(Optional) Date to screen against (default TODAY).
.ARY	(Optional) Output Array, passed by reference.
Src	(Optional)Source Abbreviation. Source abbreviations (SAB) may be found in Appendix A or the ASAB cross-reference if the Coding Systems file 757.03. It is used to distinguish between different coding systems with the same code.

Output

$$STATCHK 2 or 3 Piece String containing the code's status, the IEN, and if the status exist, the effective date, else -1 in lieu of the IEN.

The following are possible outputs:

1 ^ IEN ^ Effective Date	Active Code
0 ^ IEN ^ Effective Date	Inactive Code
0 ^ IEN	Not Active
0 ^ -1	Code not Found

.ARY (Optional) A local array (when passed by reference) containing the ASTM Triplet, the Major Concept Map and the Semantic Map.

ARY(0) Code, a 2 Piece String containing:

1 IEN in the CODES file #757.02

2 A Code (external)

ARY(1) Expression, a 2 Piece String containing:

1 IEN in the EXPRESSION file #757.01

2 The Code’s Expression (external)Code is Inactive, and not found in the Lexicon

ARY(2) Coding System, a 4 Piece String containing:

1 IEN in the CODING SYSTEMS file #757.03

2 Source Abbreviation (i.e., ICD or CPT)

3 Source Nomenclature (i.e., ICD-9-CM or CPT-4)

4 Source Full Name

ARY(3) Major Concept, a 3 Piece String containing:

1 IEN in the MAJOR CONCEPT MAP file #757

2 IEN in the EXPRESSIONS file #757.01

3 The Major Concept expression, which may be different from the code's expression in ARY(1)

ARY(4,#) Semantics (multiple), a 5 Piece String:

1 IEN in the SEMANTIC MAP file #757.1

2 IEN in the SEMANTIC CLASS file #757.11

3 IEN in the SEMANTIC TYPE file #757.12

4 External Semantic Class

5 External Semantic Type

7.1.7 LEXTRAN

CODE^LEXTRAN(Code, Src,Date,.ARY) ICR 4912

This API retrieves concept data for a given code and coding system.

Input

Code	This is a source code taken from one of the classification systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.
Src	This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.
Date	This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.
ARY	This is the output array (defaults to LEX if none specified).

Output

$$CODE If API finds an active code for the source

"1^CODE"

ARY - an array containing information about the code

ARY(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

ARY("F") fully specified name

ARY("P") preferred term

ARY("S",n) synonyms (n is the nth synonym)

if call cannot find specified code on file

"-2^"_NAME_" code "_CODE_" not on file"

where NAME is the source name and CODE is the code

if call finds an inactive code for the source
"-4^"_NAME_" code "_CODE_" not active for "_DATE
ARY - an array containing information about the code
ARY(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

otherwise
"-1^error text"

example of ARY array:
ARY(0)="67922002^Substance^20050701^T-C2500^1"
ARY("F")="Serum (Substance)"
ARY("P")="Serum"

TEXT^LEXTRAN(Text,Date,Sub, Src,ARY) ICR 4913

This API retrieves concept data for a given designation and coding system.

Input

Text This is a designation.

Date This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.

Sub This is a subset identifier. The subset specified must be one of the subsets defined in the subset definitions file (757.2).

Src This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. E.g., ICD, CPT, DSM, NANDA, etc.

ARY This is the output array (defaults to LEX if none specified).

Output

LEX or passed array name - an array containing information about the code

LEX(0) - a five piece string:

1. code
2. hierarchy
3. version
4. legacy code
5. code status

otherwise

"-1^error text"

example of LEX array:

```
LEX(0)="67922002^Substance^20050701^T-C2500^1"
LEX("F")="Serum (Substance)"
LEX("P")="Serum"
```

VERSION^LEXTRAN(Src,Code,Date) ICR 5011

This API retrieves version information for a given coding system and code.

Input

Src This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.

Code This is a source code taken from one of the classification systems listed in Coding Systems file #757.03. e.g., ICD, CPT, DSM, NANDA, etc.

Date This is a date in FileMan format used to ensure that the expressions returned are for active codes on the date supplied. If the date is not passed, then TODAY is used.

Output

$$VERSION 1^Version

or

-1^error message

TXT4CS^LEXTRAN(Text, Src,ARY, Sub) ICR 4914

This API determines whether a given designation is valid for a specified coding system.

Input

Text This is a designation.

Src This is a coding system identifier that identifies one of the coding systems listed in Coding Systems file #757.03. E.g., ICD, CPT, DSM, NANDA, etc.

ARY This is the output array (defaults to LEX if none specified).

Sub This is a subset identifier. The subset specified must be one of the subsets defined in the subset definitions file (#757.2).

Output

$$TXT4CS 1^number of finds

plus

LEX or passed array name - an array containing discovered concept IDs and expression type for finds, e.g. LEX(113912006)="MAJOR CONCEPT"

or

-1^error message

7.1.8 LEXTRAN1

$$GETSYN^LEXTRAN1(Src,Code,Date,ARY,IEN)   ICR 5006

This API will return an array for a given code and coding system. The array will contain all synonyms for the concept including the preferred term and the fully specified name. If any of the parameters are incorrect or unrecognizable, the API will return an error message indicating the nature of the error.

Input

Src	This is the mnemonic for a code system (mandatory). The allowable code system mnemonics are those that exist in the "B" index of the coding systems file (#757.03) This is code system source abbreviation Lexicon.
Code	This is a code of a classification system that is stored in the Lexicon. Classification systems include SNOMED CT, ICD, CPT, HCPCS, etc.
Date	This is the effective date; the default if no date is specified is the current system date (optional).
IEN	If this parameter is set to 1 the expression IEN will be included in the return array. Default is 0 - exclude IENS from return array.

Output

ARY	This is the name of the output array. The default, if no array name is specified, is 'LEX' (optional)

The format of the output is as follows:

If valid code and source are passed

1^no of synonyms

LEX("P") = preferred term or major concept name^IEN

LEX("F") = fully specified name^IEN (if one exists)

LEX("S",n) = the nth synonym found^IEN (if they exist)

The presence of IEN in the return array is determined by the IEN parameter.

If the call does not find the code for the specified source it will return "-2^"_NAME_" code "_CODE_" not on file" where NAME is the source name CODE is the code.

If an invalid source is passed the call will return "-1^source not recognized"

$$GETFSN^LEXTRAN1(Src,Code,Date) ICR 5007

This API returns the fully specified name for a given coding system and code. If any of the passed parameters are incorrect or unrecognizable, the API will return an error message indicating the nature of the error.

Input

Src	This is the mnemonic for a coding system (mandatory). The allowable code system mnemonics are those that exist in the "B" index of the coding systems file (#757.03) This is code system source abbreviation Lexicon.
Code	This is a code that belongs to a coding system that is stored in the Lexicon. Coding systems include SNOMED CT, ICD, CPT, HCPCS, etc.
Date	This is the effective date; the default if no date is specified is the current system date (optional).

Output

$$GETFSN If the API finds an active code for the source

```
        1^FSN
        where FSN is the fully specified name
or
If the API cannot find specified code on file
        -8^_NAME_" code "_CODE_" has no FSN"
        where NAME is the source name and CODE is the code
or
-1 ^ error message
```

$$GETPREF^LEXTRAN1(Src,Code,Date) ICR 5008

This API returns the preferred term for a given coding system and code. If any of the parameters are incorrect or unrecognizable, the API will return an error message indicating the nature of the error.

Input

Src	This is the mnemonic for a code system (mandatory). The allowable code system mnemonics are those that exist in the "B" index of the coding systems file (#757.03). This is the Lexicon code system source abbreviation.
Code	This is a code belonging to a coding system that is stored in the Lexicon. Coding systems include SNOMED CT, ICD-9-CM, CPT, HCPCS, etc.
Date	This is the effective date; the default if no date is specified is the current system date (optional).

Output

$$GETPREF If call finds an active code for the source

1^PREF

where PREF is the preferred name

or

If call cannot find specified code on file

-2^_NAME_" code "_CODE_" not on file"

where NAME is the source name and CODE is the code

or

-1 ^ error message

$$GETDES^LEXTRAN1(Src,Text,Date) ICR 5009

Input

Src This is the mnemonic for a code system (mandatory). The allowable code system mnemonics are those that exist in the "B" index of the coding systems file (#757.03). This is the Lexicon code system source abbreviation.

Text This is the displayable text of the expression for which the designation code is being sought (mandatory).

Date This is the effective date; the default if no date if no date is specified is the current system date (optional).

Output

$$GETDES If call finds an active code for the source

1^DESIG

where DESIG is the designation code

or

If call cannot find specified code on file

-2^_NAME_" code "_CODE_" not on file"
where NAME is the source name and CODE is the code.

or

-1 ^ error message

$$GETDID^LEXTRAN1(SRC,IEN) ICR 6472

Input

SRC This is either the Source Abbreviation (SAB) from the .01 field of the Coding Systems file #75.03 or an internal entry number (IEN) of the Coding Systems file #757.03.

IEN This is the displayable text of the expression for which the designation code is being sought (mandatory).

Output

$$GETDID This is the designation code for the term identified by the input parameter IEN for the coding system identified by the input parameter SRC.

or

If not found or error

-1 ^ message

$$GETASSN^LEXTRAN1(Code,Map,Date,ARY) ICR 5010

This API returns an array containing the mappings for a specified code for a specified mapping identifier. If any of the parameters are incorrect or unrecognizable, the API will return an error message indicating the nature of the error.

Input

Code This is a code belonging to a coding system that is stored in the Lexicon. Coding systems include SNOMED CT, ICD, CPT, HCPCS, etc.

Map This is the mapping identifier (mandatory). This allows the system to determine which map is to be used for translation. The map must be defined in the mapping definition file (#757.32).

Date This is a code belonging to a coding system that is stored in the Lexicon. Coding systems include SNOMED CT, ICD, CPT, HCPCS, etc.

Output

ARY This is the name of the output array. The default, if no array name is specified, is 'LEX' (optional) the output array will have the following format:

```
LEX(n,CODE)=""
where n is the nth mapped code
CODE is the code which is mapped to
```

e.g.

```
>S V=$$GETASSN(15250008,"SCT2ICD")

LEX=2
LEX(1,"371.30")=""
LEX(2,"371.40")=""
```

which shows that SNOEMD CT code 15250008 is mapped to two ICD-9-CM codes.

If the API finds no active mappings for passed arguments

0^0

If a bad argument is passed for a parameter, then the API returns

#NAME?

If the API cannot find specified code on file

-2^_NAME_" code "_LEXCODE_" not on file"

where NAME is the source name and CODE is the code

7.1.9 LEXXM

$$MIX^LEXXM(Text) **ICR 5781**

This entry point converts any text to a modified mix case.

Input

Text	This is a string of text in any case possible.

Output

$$MIX	This is a string of text in mixed case.

7.1.10 LEXXMC

$$MIX^LEXXMC(Text) ICR 6266

This API converts text from any form to a modified mix text format. This API replaces an older API $$MIX^LEXXM (ICR 5781) which converted text to mix text using hard coded rules found in a series of Lexicon namespace routines. This API still uses rules to convert text to mixed case but the rules are stored in the TOKENS file #757.07 which is much easier to maintain.

Examples:

Input:	arthropathy in behcet's syndrome involving other specified sites
Output:	Arthropathy in Behcet's Syndrome involving other specified sites
Input:	24 hour esophageal ph study
Output:	24 hour Esophageal pH Study

Input

TEXT This is a text string to be converted to mix text.

Output

$$MIX This is a string of text in mixed case.

7.1.11 LEXA

INFO^LEXA(IEN,Date) ICR 1597

This entry point allows an application to build the LEX(“SEL”) selection array for any term in the Lexicon based on the internal entry number from the Expression file (#757.01). This entry point is meant to be used outside of the Lexicon lookup. It allows the application to retrieve information pertaining to the term to include synonyms, lexical variants, definitions, classification codes, semantic class and type, and linkages to the major VA classification files (e.g., ICD, CPT, DSM).

Input

IEN This is an Internal Entry Number from the Lexicon Expression file #757.01.

Date This is a date in FileMan format used to control which classification codes are returned based on the date supplied. If the date is not passed, then TODAY is used. Only active codes are returned.

Output

LEX(“SEL”) Local array LEX("SEL") containing the following segments:

Array Segment	Content
LEX("SEL","EXP")	Expressions
LEX("SEL","SIG")	Definitions when one exists
LEX("SEL","SRC")	Sources (classification codes)
LEX("SEL","STY")	Semantic Class and Type
LEX("SEL","VAS")	VA Sources

The LEX("SEL") array and all of its segments are described in the section titled Special Variables under the subheading Local Arrays.

LOOK^LEXA(X ,App, Len, Sub,Date,Src,Cat,Fmt) ICR 6267

This entry point is silent and intended to support Graphical User Interface (GUI) development.

Input

X Equivalent to FileMan's variable X and contains the text to search for.

App This is the aplication or vocabulary identification and may be in the form of a name or a namespace a subset definition in the Subset Definition file (#757.2).

Included in this application/vocabulary definition are a number of defaults which assist in searching the Lexicon. Defaults may include:

> Global root, index, filter, display, vocabulary, user default flag, overwrite user default flag, and the unresolved narrative flag.

Values for this parameter can be found in either the "AN" or "AA" cross-reference of the Subset Definition file (#757.2).

Examples:

Application ("AN" Index)	Namspace
Lexicon	LEX
Problem List	GMPL
ICD Diagnosis	ICD
CPT Procedures	CPT
Mental Health	DSM
ICD, CPT, and DSM Terminology	VAC
Radiology	RA

Vocabularies ("AA" Index)	Namspace
Main Word Index	WRD
Clinical Findings Index	CLF

Len This is a numeric value which controls the returning list length in the local array LEX("LIST"). The default value for this parameter when not supplied is five (5).

Sub This parameter is a mnemonic representing the subset to use during the search. These subsets are defined in the Subset Definition file (#757.2) and can be found in either the AA or AB cross-reference. The subset may have default values set that are different from the controlling application or vocabulary.

Vocabularies ("AA" Index)	Namspace
Main Word Index	WRD
Clinical Findings Index	CLF
SNOMED CT	SCT

Subsets ("AB" Index)	Namspace
ICD-10-CM	10D
CPT-4/HCPCS	CHP
Encounter Forms #2	EF2
DSM-IV	DSM
Problem List #1	PL1

Date This is a date in Fileman format used to check if a code is active or inactive on a specified date. If not supplied, it will default to TODAY. Only active codes can be displayed and returned during a lookup.

Src This is a source of a vocabulary taken from the Source file #757.14. When present, only terms attributed to that source will be returned.
Examples:

Breast Imaging Reporting and Data System (BI-RADS) Atlas (ACR)
Mammography Quality Standards Act of 1992 (MQSA)
Automated Service Connected Designation (ASCD)

Cat This is the category of a source of a vocabulary taken from the Category file 757.13. When present, only terms attributed to that category will be returned.
Examples:

MRI
Ultrasound
Mammography

Fmt This output format:

0 Default, Display Text
LEX("LIST",1)="5019187^Mouth Breathing (ICD-10-CM R06.5)"

1 Parsed Format
LEX("LIST",1)="5019187^Mouth Breathing"
LEX("LIST",1,30)="R06.5^ICD-10-CM^521361;ICD9("

Output

Full descriptions of the global and local arrays may be found in the section on Special Variables.

^TMP("LEXFND",$J,freq,IEN)
This global array contains all of the entries found during the search. The freq is a negative number based on the frequency of use for a given term. IEN is the internal entry number in the Lexicon Expression File (#757.01).

^TMP("LEXHIT",$J,seq)
This global array contains the entries reviewed by the user. The Lexicon Utility reorders the list based on frequency of use and assigns a sequence number representing where on the list this entry is located.

LEX("LIST")
This local array contains only those entries on the list which are currently being reviewed by the user. The third parameter to the look-up defines the length of this list.

7.1.12 LEXAR

EN^LEXAR(Response ,Date)

Input

Response This entry point is designed to interpret the user's response to the selection list. It takes two types of input:

1. A user's response
2. A comment from an application

Date This date is used to return the appropriate coding and classification information with the expression found during the search. This parameter only comes into play when the Response from the user is a number where the user is selecting an expression from the list.

Input	Action	Results

Null	PGDN	A null response has the effect of advancing the list by the number of entries defined by the third input parameter of the lookup.
		1. If a null response is received from the user and the user is not at the end of the list, then the next # of entries is placed on the list in the local array.
		`LEX=total matches found`
		`LEX("EXC")=exact match concept - optional`
		`LEX("EXM")=exact match - optional`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("MAX")=last entry reviewed`
		`LEX("MIN")=first entry review`
		`LEX("NAR")=user input - optional`
		2. If a null response is received from the user and the user is at the end of the list, then the list is killed and the dialog with the user is considered over. If the application uses the Unresolved Narratives the user narrative may be returned as the user's response to save the narrative in the Unresolved Narrative file (#757.06).
		`LEX=0`
		`LEX("NAR")=user input`

^	QUIT	Ends the dialog with the user by quitting the selection process, killing the selection list and setting LEX=0
		`LEX=0`
		`LEX("NAR")=user input`

^^	EXIT	Ends the dialog with the application and kills all LEX namespaced variables.

^#	JUMP	An up-arrow followed by a numeric value where the number is a specified entry on the list allows the user to jump from one location on the list to another.
		`LEX=total matches found`
		`LEX("EXC")=exact match concept - optional`
		`LEX("EXM")=exact match - optional`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("LIST",#)=entry`
		`LEX("MAX")=last entry reviewed`
		`LEX("MIN")=first entry review`
		`LEX("NAR")=user input - optional`

?	HELP	Places standard help in the array LEX("HLP").
		`LEX=total matches found`
		`LEX("EXC")=exact match concept - optional`
		`LEX("EXM")=exact match - optional`

		LEX("HLP",#)=help text LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("MAX")=last entry reviewed LEX("MIN")=first entry review LEX("NAR")=user input - optional LEX("LIST",#)=entry LEX("MAX")=last entry reviewed LEX("MIN")=first entry review LEX("NAR")=user input - optional
?#	HELP	A question mark followed by a numeric value where the number is a specified entry on the list. If the entry specified has a definition, that definition is placed in the array LEX("HLP"). LEX=total matches found LEX("EXC")=exact match concept - optional LEX("EXM")=exact match - optional LEX("HLP",#)=definition text LEX("HLP",#)=definition text LEX("HLP",#)=definition text LEX("HLP",#)=definition text LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("MAX")=last entry reviewed LEX("MIN")=first entry review LEX("NAR")=user input - optional
-	PGUP	Backs up the list by the number of entries defined by the third parameter of the lookup. LEX=total matches found LEX("EXC")=exact match concept - optional LEX("EXM")=exact match - optional LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("LIST",#)=entry LEX("MAX")=last entry reviewed LEX("MIN")=first entry review LEX("NAR")=user input - optional
#	SELECT	Selects an entry from the list and kills the list. The selected entry, and information pertaining to the entry, is placed in the array LEX("SEL"). LEX=total matches found LEX("SEL")=exact match - optional LEX("SEL","EXP",0)=expressions LEX("SEL","EXP",#)=IEN^expression text LEX("SEL","SIG",0)=definition LEX("SEL","SIG",#)=definition text LEX("SEL","SRC",0)=sources LEX("SEL","SRC",#)=source^code LEX("SEL","VAS",0)=VA sources LEX("SEL","VAS",#)=file^VP^code^IEN

		If a date is passed, then the sources listed in the LEX(“SEL”,”SRC”) array will contain active codes based on the date provided. If no date is passed, only active codes for TODAY will be listed.
User Input	Unresolved Narrative	If the list does not exist (in the case of receiving a null response at the end of the list), and the application uses unresolved narratives, and the user’s original input string to the lookup is returned to the Lexicon, then the user's input and pertinent information about the search are saved in the Unresolved Narrative file (#757.06).

Application Comment	Action
IEN^"Comment"	This is a special case of this entry point (similar to the use of Unresolved Narratives), and can only be used outside of the Lexicon Lookup (i.e. LEX does not exist). This response to this entry point allows an application to comment on an actual term contained in the Lexicon, save this comment in the Unresolved Narratives file (#757.06), and have that comment returned to the developers along with the user’s unresolved narratives. This special case is left up to the discretion of the calling application developers. Examples of application comments might be: IEN^Diagnostic term maps to 799.9 This type of comment might be used by an application that requires a valid ICD with a diagnostic term (as is the case with Problem List). If the Lexicon returns the term without an ICD or with an ICD code not found in the ICD Diagnosis file (#80), then the application could take advantage of this entry point to instruct the developers of the Lexicon to have Medical Records Technicians take a look at the term and evaluate the term to an appropriate ICD code for future iterations of the Lexicon. IEN^RBBB suggested shortcut - Right bundle branch block This type of comment might be used when the user input RBBB fails to return a selection list, and on a subsequent search the user entered bundle branch block and selected Right bundle branch block, implying that RBBB was intended to have found "Right bundle branch block."

7.1.13 LEXD* Namespaced Routines

EN1^LEXD*(Application)

This is a series of callable routines established for the expressed purpose of setting user defaults for a given application and intended for applications to create options to change the user lookup defaults for that application. All of these routines assume DUZ is set to the current user. Two conditions must be met for these routines to be used:

1. The application indicated by the input parameter has an application definition in the Subset Definition file (#757.2).
2. The application definition permits user defaults (Application User Defaults flag in file #757.2 is set to 1).
3.

Input

Application   This is the application identification and may be in the form of a name (i.e., PROBLEM LIST", a namespace (i.e., GMPL) or a pointer (Internal Entry Number - IEN) from an application definition in the Subset Definition file (#757.2). The default value for this parameter, if not supplied, is one (1), pointing to the Lexicon application definition. This is the same as the Application input parameter for LOOK^LEXA.

EN1^LEXDFL(Application)   ICR 1599

This entry point allows a user to select or create a default filter for the application identified by the input parameter application.

EN1^LEXDCC(Application)   ICR 1601

This entry point allows a user to select or create a default display for the application identified by the input parameter application.

EN1^LEXDVO(Application)   ICR 1603

This entry point allows a user to select a default vocabulary for the application identified by the input parameter application.

EN1^LEXDCX(Application)   ICR 1605

This entry point allows a user to select a set of shortcuts (based on context) for the application identified by the input parameter application.

7.1.14 LEXMUCUM

$$UCUMCODE^LEXMUCUM(IEN) ICR 6225

Given the internal entry number (IEN) of an entry from the UCUM CODES file #757.5, return the Unified Code for Units of Measure (UCUM) Code.

Input

IEN	Internal Entry Number (IEN) of the UCUM CODES file #757.5.

Output

$$UCUMCODE	This is a Unified Code for Units of Measure (UCUM) code.

UCUMDATA^LEXMUCUM(ID,.ARY) ICR 6225

Input

ID	This is an identifier which can be an Internal entry number from the UCUM Codes file #757.5, a description from the UCUM Codes file, or a UCUM code.

Output

.ARY This is a local array, passed by reference in the following format:

Array Segment	Content
ARY("IEN","CODE")	UCUM Code
ARY("IEN","DESCRIPTION")	Description of the unit
ARY("IEN","COMMENTS”)	Comments if there are any.
ARY("IEN","ROW")	This is the row in the source spreadsheet.
ARY("IEN","ERROR")	If there was an error, this is a description of the error

$$VERSION^LEXMUCUM(.ARY) ICR 6225

Input

None

Output

.ARY This is a local array, passed by reference in the following format:

Array Segment	Content
ARY("NAME")	Name of this implementation of UCUM
ARY("DATE")	Release date
ARY("NUMBER”)	Version number

7.2 Special Variables

7.2.1 Variables Affecting the Lookup

LEXLL

This variable is taken from the third parameter to the entry point LOOK^LEXA and is a numeric value and controls the returning list length in the local array LEX("LIST").

LEXSUB

This variable is taken from the fourth parameter to the entry point LOOK^LEXA and the second input parameter to the entry point CONFIG^LEXSET. It represents the vocabulary subset to use during the search. This subset is indexed at either the AA or AB index of the Subset Definition file (#757.2).

For example, to use the Nursing subset you may pass the parameter as the mnemonic "NUR."

Acceptable subset mnemonics can be found in either the AA or AB index of file #757.2.

LEXQ

This variable is used to tell the setup routine CONFIG^LEXSET which type of search variables to return:

If LEXQ=1 (default value if missing)

Returns search variables for the silent lookup LOOK^LEXA (version 2+) and the loud lookup ^LEXA1 (version 2+) which is called by ^DIC and uses silent calls. These search variables are placed in the global array ^TMP("LEXSCH",$J). The default for LEXQ when it does not exist is 1.

If LEXQ=0 (rarely used - XTLK only)

Returns the search variables for the loud lookup using the Kernel Toolkit's Multi-Term Lookup Utility (MTLU) entry point ^XTLKKWL (Version 1.0).

NOTE**:** X must be preset to the user input prior to calling CONFIG^LEXSET with LEXQ=0.

The MTLU is rarely used, primarily because MTLU is not a versioned search method.

LEX

This variable indicates the current status of the dialog between the Lexicon and either the user or the calling application.

LEX > 0

The lookup is still engaged, the selection list stored at ^TMP("LEXHIT") still exists, and the lookup is waiting for a user response.

LEX = 0

The lookup has disengaged, the selection lists stored at ^TMP("LEXHIT") and ^TMP("LEXFND") have been deleted, and the lookup is waiting for a response from the application. There are only two conditions that can set LEX to 0. They are:

a. The user has reviewed the entire selection list and not made a selection. If this is the case, the global array ^TMP("LEXSCH",$J) still exists. At this point, the Lexicon is waiting to receive either the user narrative (to be saved in the Unresolved Narratives file #757.06) or any other response to proceed with cleaning up the environment before disengaging the dialog with the application.

b. The user has made a selection from the list. If this is the case, the local array LEX("SEL") is present. The Lexicon considers the dialog with the application over, and leaves the cleanup of the environment to the calling application (by killing LEX).

LEX does not exist.

This condition occurs when:

a. The user's input to LOOK^LEXA is null or contains an up-arrow (^) ending the dialog between the application and the Lexicon.
b. The user's response while reviewing the list contains double up-arrows (^^) ending the dialog between the user and the Lexicon.

LEXVDT

This is a package wide variable and is taken from the fifth parameter to the entry point LOOK^LEXA and is the date (FileMan format) to use to find active codes and terms based on the given date. If not passed, TODAY is used. This date is used also by several other APIs related to data lookup and extraction. As a general guideline, this date should be either the date that service was provided to patient or the date that the term or code is used. This variable is also used in the FileMan (loud) lookup and can be set prior to calling ^DIC. After calling LOOK^LEXA, this variable will remain in the environment. The calling application are responsible for NEWing or KILLing this variable before or after the lookup.

7.2.2 Global Arrays

^TMP(“LEXFND”,$J) Found Array

This global array contains the list of expressions found during the search. This global array continually grows smaller as ^TMP("LEXHIT") grows larger as the user reviews the selection items.

^TMP(“LEXHIT”,$J) Hit Array

This global array contains the list of expressions found during the search. It is built by reordering the list in ^TMP("LEXFND") as the user reviews the list. The exact match (if any) at the top of the list, is immediately followed by other expressions found in the order of frequency of use. This array grows larger as the user reviews the list by adding entries to the list from ^TMP("LEXFND"). It is deleted when the Lexicon disengages the dialog with the user (the user either entered an up-arrow ^ or has reviewed the entire list and did not make a selection).

^TMP(“LEXSCH”,$J,search parameter) Search Conditions

This global array contains the conditons used by the lookup to control the search. CONFIG^LEXSET is used to create this global array.

Parameter	Search Conditions	Kernel MTLU Equivalent
APP	Calling Applications	LEXAP
DIS	Display	LEXSHOW
EXC	Exact Match Concept	
EXM	Exact Match	
FIL	Filter	DIC(“S”)
FLN	File Number	
FMT	Output Format	

GBL	Global	DIC, XTLKGBL, XTLKKSCH("GBL")
IDX	Index to Search on	XTLKKSCH("INDEX")
LEN	List Length	
LST	Last entry reviewed	
NAR	User input Narrative	X, XTLKX
NUM	Number of matches found	^TMP("XTLKHITS",$J)
OVR	Overwrite user defaults flag	
RES	Last user response	
SCH	Search string	
SCT	Shortcut preference	
SVC	User’s Service	
TOL	Top of the List flag	
UNR	Unresolved Narrative flag	LEXUN
USR	User ID	DUZ
VDT	Code Set Version Date	
VOC	Subset (vocabulary)	LEXSUB

7.2.3 Local Arrays

LEX

There is only one local array, LEX. It contains the following segments:

LEX("ERR",#)	Errors
LEX("EXC")	Location of an Exact Match Major Concept
LEX("EXM")	Location of an Exact Match Major Concept
LEX("HLP",#)	Help Text to Display
LEX("LIST",#)	Selection List to Display
LEX("NAR")	User Narrative
LEX("MAT")	Matches Found String
LEX("MAX")	The Maximum allowable Selection
LEX("MIN")	The minimum allowable Selection
LEX("RES")	Last Response from the User
LEX("UNR")	Unresolved Narrative flag
LEX("SEL",SEG,#)	The Results of a User Selection

LEX("ERR") Error Array

This segment only exists if an exact match is found during the lookup. It provides the location where the exact match is stored. There are two forms of this segment:

1. The list still exists and the user is reviewing the entries on the list for selection:

   LEX("EXM")=position on the list^term

   In this case, the position on the list is set to 1 (exact matches are placed on the top of the selection list). A calling application could use the position on the list (the first piece) as a default value (formerly DIC("B")) when offering the user a choice.

   ```
   22 matches found
   1. Exact match
   2. Exact match Major Concept - see LEX("EXC") below
   3. Other match
   4. Yet another match
   5. ....

   Select 1-5: 1//
   ```

2. The list no longer exists because the user has either made a selection from the entries on the list or has reviewed all the entries on the list without making a selection:

   LEX("EXM")=IEN^term

   In this case, the position on the list has been replaced with the internal entry number in the Lexicon Expression file (757.01) and remains available for further use (i.e., Unresolved Narratives).

LEX("EXC") Exact Match Concept

This segment only exists if an exact match is found during the lookup (see EXM above) and the exact match is not a Major Concept (i.e., synonym or lexical variant to a Major Concept). It provides the location where the Major Concept of the exact match is stored. Like EXM, there are two forms of this segment, they are:

1. The list still exists and the user is reviewing the entries on the list for selection:

   LEX("EXC")=position on the list^term

   Example: User searches the Lexicon for "CHF"

   ```
   5 matches found

   1. CHF (exact match, synonym to Major Concept)
   2. Congestive Heart Failure (Major Concept of exact match)
   3. Other match
   4. Yet another match
   5. ....

   Select 1-5: 1//
   ```

2. The list no longer exists because the user has either made a selection from the entries on the list or has reviewed all the entries on the list without making a selection:

   LEX("EXC")=IEN^term

LEX("HLP") Help Array

Help text to be displayed (or term definition) when the user’s response contains a "?"

LEX("LIST") List Array

Contains only those entries that should be displayed to the user for selection. It differs from ^TMP("LEXFND") which contains all matches found and ^TMP("LEXHIT") which contains all entries reviewed by the user. It can be thought of as a single page of the selection list with a page length defined by the calling application at the time the search is initiated (the third input parameter of LOOK^LEXA). The default page length of the displayable list is 5, displaying 5 entries at a time until the user has reviewed all the entries on the list or made a selection from the list.

LEX("NAR") User Narrative

This is the text string that the user inputs to the lookup. It only exists if the calling application uses the Unresolved Narrative function of the Lexicon.

LEX("MAT") Matches Found String

This text string indicates the total number of entries found during the search, and it is only available during the initial review of the list and when the user is at the top of the list. Examples might be 1 match found or 36 matches found, and could be used as:

```
22 matches found

1. Condition
2. Condition without mention of complications
3. Condition in late stages of development
4. Condition ....
5. Condition ....

Select 1-5:
```

LEX("MAX") Maximum Selection

This segment only exists if a selection from the list is possible. When it exists, it sets to the number of the last entry on the list that the user has reviewed, not the total number of entries found. The total number of entries found is stored at LEX. LEX is frequently greater that LEX("MAX") until the user has reached the end of the list, then they are the same. If the last entry on the list that a user has reviewed was 30, and the user jumps backwards on the list (jumps from entry 30 to entry 8), LEX("MAX") remains at 30.

We suggest that both LEX("MIN") and LEX("MAX") may be used to build a selection prompt (formerly DIC("A")) for the user. For example:

Select _LEX("MIN")_-_LEX("MAX")_:

LEX("MIN") Minimum Selection

This segment only exists if a selection from the list is possible. When it exists, it should always be set to 1.

LEX("RES") Response from the User

This segment contains the last response from the user. It only exists if the global array ^TMP("LEXSCH") exists.

LEX("SEL") Selection Array

Returned information about the user's selection (formerly a non-negative Y in Version 1.0). The absence of this array segment at the conclusion of the user's review of the list implies that no selection was made or that the user up-arrowed out of the selection process (implied -Y). The calling application must extract from the array the information needed and delete the array. The following is an example of the SEL array:

```
LEX("SEL","EXP",0)=5
LEX("SEL","EXP",1)=22600^Sexual Abuse of Child
LEX("SEL","EXP",2)=22601^Child Molestation,
Sexual
LEX("SEL","EXP",3)=22604^Abuses, Child Sexual
LEX("SEL","EXP",4)=22608^Child Sexual Abuses
LEX("SEL","EXP",5)=22610^Sexual Abuses, Child
LEX("SEL","EXP","B",22600,1)=
LEX("SEL","EXP","B",22601,2)=
LEX("SEL","EXP","B",22604,3)=
LEX("SEL","EXP","B",22608,4)=
LEX("SEL","EXP","B",22610,5)=
LEX("SEL","EXP","C","LEX",3)=
LEX("SEL","EXP","C","LEX",4)=
LEX("SEL","EXP","C","LEX",5)=
LEX("SEL","EXP","C","MAJ",1)=
LEX("SEL","EXP","C","SYN",2)=
LEX("SEL","SIG",0)=1
LEX("SEL","SIG",1)=Sexual maltreatment of the
child or
minor.
LEX("SEL","SRC",0)=3
LEX("SEL","SRC",1)=ICD-9-CM^995.5^22600
LEX("SEL","SRC",2)=ICD-9-CM^V61.21^22600
LEX("SEL","SRC",3)=DSM-IV^V61.21^22600
LEX("SEL","SRC","B","DSM-IV",3)=
LEX("SEL","SRC","B","ICD-9-CM",1)=
LEX("SEL","SRC","B","ICD-9-CM",2)=
LEX("SEL","SRC","C",995.5,1)=
LEX("SEL","SRC","C","V61.21",2)=
LEX("SEL","SRC","C","V61.21",3)=
LEX("SEL","SRC","D",22600,1)=
LEX("SEL","SRC","D",22600,2)=
LEX("SEL","SRC","D",22600,3)=
LEX("SEL","STY",0)=1
LEX("SEL","STY",1)=Diseases/Pathologic
Processes^Mental or
Behavioral Dysfunction
LEX("SEL","VAS",0)=11
LEX("SEL","VAS",1)=80^11656;ICD9(^V61.21^22600
LEX("SEL","VAS",2)=80^7571;ICD9(^995.5^22600
LEX("SEL","VAS",3)=627.7^1055;YSD(627.7,^V61.21^2
2600
LEX("SEL","VAS","B",80,1)=
LEX("SEL","VAS","B",80,2)=
LEX("SEL","VAS","B",627.7,3)=
LEX("SEL","VAS","C",995.5,2)=
LEX("SEL","VAS","C","V61.21",1)=
LEX("SEL","VAS","C","V61.21",3)=
LEX("SEL","VAS","D",22600,1)=
LEX("SEL","VAS","D",22600,2)=
LEX("SEL","VAS","D",22600,3)=
LEX("SEL","VAS","V","1055;YSD(627.7,",3)=
LEX("SEL","VAS","V","11656;ICD9(",1)=
LEX("SEL","VAS","V","7571;ICD9(",2)=
```

The LEX("SEL") array is in 5 segments:

LEX("SEL","EXP") Expressions

Contains the expressions selected by the user in the same format as FileMan's returned variable Y. This portion of the array includes the Major Concept and all Synonyms and Lexical Variants. LEX("SEL","EXP",1) is always the expression selected by the user. This segment has two indexes:

B Internal Entry Point of the Expression file #757.01.

C Expression type; (MAJ)or concept, (SYN)onym, and (LEX)ical variants

LEX("SEL","SIG") Significance

Contains the definition of the Major Concept, if one exists.

LEX("SEL","SRC") Sources

Contains source codes for specified classification systems (i.e., ICD, CPT, DSM, etc.) for the expressions contained in LEX("SEL","EXP"). Each entry contains the classification system nomenclature, the classification code, and the internal entry number to the expression in file 757.01 to which it is mapped.

All classification codes returned in this segment are active codes based on the versioning date provided. If no date is provided, then all codes returned in this array are active as of TODAY (default).

This segment has three indexes:

- B Classification System Nomenclature
- C Classification Code
- D Internal Entry Number to file 757.01

LEX("SEL","STY") Semantics

Contains the Semantic Class and the Semantic Type of the Major Concept contained in LEX("SEL","EXP").

LEX("SEL","VAS") VA Sources

If one or more of the sources in LEX("SEL","SRC") is found in one of the primary VA authoritative files, then this section contains the file number, variable pointer, the source code, an internal entry number to the Lexicon expression, the source abbreviation, and the source name. The primary VA authoritative files pointed to include file #80 (ICD Diagnosis), file #80.1 (ICD Procedures), file #81 (CPT), and file #627.7 (DSM-IV).   There exist one exception, Title 38 disability codes for which the Lexicon CODES file #757.02 is the authoritative file.

```
      LEX("SEL","VAS",1)="80^2895;ICD9(^530.6^270063^ICD^ICD-
      9-CM"
      LEX("SEL","VAS",2)="757.02^317612;LEX(757.02,^7205^27006
      3^SCC^TITLE 38"
      LEX("SEL","VAS",#)=File #^Variable
Pointer^Code^IEN^SAB^Source
```

For each entry, an activation history is provided including the effective date, the status, and a comment.

```
      LEX("SEL","VAS",1,1)="2781001^1^Activated"
      LEX("SEL","VAS",#,#)=effective date^status^comment
```

All classification codes returned in this segment are active codes based on the versioning date provided. If no date is provided, then all codes returned in this array are active as of TODAY (default).

This segment has five indexes:

“B” VA authoritative file number

“C” Classification Code

“D” Internal Entry Number to file 757.01

“S” Source Abbreviation

“V” Variable pointer to the authoritative file

7.3 Controlling the View

7.3.1 View by Semantic Class and Types

The Lexicon provides for filtering the search to view only those terms that semantically fit into a class and type, or a group of classes and types. We listed these classes and types in Appendix A of this document. The Lexicon uses a string of identifiers indicating the classes and types to either include or exclude in a search. This string is in two parts (delimited by a ";") of those classes and types to include in the search and those classes and types to exclude. The ‘include’ portion of the string has precedence over the ‘exclude’ portion. The insertion of a class into the string represents all of the types belonging to that class; consequently, it is not necessary to repeat all of the types with the class. The absence of a class/type in the include portion of the string automatically excludes it from the search. Semantic classes are represented by a 3-character mnemonic and semantic types are represented numerically (provided by NLM UMLS). For example:

The string: BEH/DIS/44/45/49/167/4/5/7/PHY/PRO;50 translates to:

INCLUDE:	EXCLUDE:	
Behaviors	Activities	Nucleic Acid
Diseases/Pathologic	Anatomy	Nucleoside or Nucleotide
Process		
Physiology	Chemicals and Drugs	Amino Acid, Peptide or Protein
Procedures	Concepts and Ideas	Gene Product
Fungus	Geographic Areas	Plant
Virus	Groups	Alga
Bacterium	Physical Objects	Rickettsia or Chlamydia
Molecular Functions	Occupations/Organizations	Animal
Genetic Functions	Macromolecular Structure	Invertebrate
Cell/Molecular	Gene or Genome	Vertebrate
Dysfunctions		
INCLUDE:	**EXCLUDE:**	
Substances	Molecular Function	Amphibian
	Genetic Function	Bird
	Research Technique	Fish
	Molecular Sequence	Reptile
	Nucleotide Sequence	Mammal
	Amino Acid Sequence	Human

	Carbohydrate Sequence	

7.3.2 View by Classification System

The Lexicon lets you filter the search to view only those terms linked to a specified classification system. These classification systems (provided by both the NLM and the VA) are represented by a 3 character mnemonic and are listed in Appendix B of this document. The Lexicon uses a string of mnemonic identifiers indicating the classification systems to include in a search. For example:

The string: "ICD/CPT/DS4" translates to:

Include terms linked to:

ICD-9	International Classification of Diseases
CPT-4	Current Procedural Terminology
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders

7.3.3 View by both Semantics and Classification Systems

This is a combination of the two previous views. In this scenario, if the search encounters a term which is to be excluded from the search by virtue of the semantics, but the term is found to be linked to one of the specified classification systems, then the term is included in the search, ignoring the instruction to exclude the term based on semantics. An example of this type of string would be:

"BEH/DIS/44/45/49/4/5/7/PHY/PRO;50;ICD/CPT"

7.3.4 View by Subset

This is not a filtered view in the sense of including/excluding terms from a selection list. A sub-set is a group of terms based on a common theme (e.g., specialty, function, etc.) which are indexed separately from the main word index in the Lexicon. This type of view has two distinct advantages over filtering: 1) it is significantly faster since it does not have the additional burden of deciding whether to include or exclude a term, and 2) it imposes a limit on the search, making it impossible to find a term not contained in the sub-set (e.g., Diabetes Mellitus could not be found within the Dental sub-set).

7.3.5 Other Views

The Lexicon is always open to new methods of changing the view to suit the client application using the existing structures and fields. New fields can be created to support new functionality; however, it should be done with great care and thought (an 8-character mandatory field adds 2 megabytes to the Lexicon). Generally, if the view can be described, then it can be created.

8. Searching the Lexicon: Building and Re-ordering the List

The Lexicon reorders the results of a search beginning with the exact match (if found) followed by other matches in descending order of frequency of use. The reordering of the search results occurs after the search has been completed and while the user is reviewing the matches found. In order to do this, the Lexicon must build three lists. These lists include:

8.1 Matches Found ^TMP("LEXFND",$J)

This list is built while the search is in progress. Each time a match is found, that term is placed on this list in an order based on a term's frequency of use and Internal Entry Number (IEN) from the Expression file (#757.01). When the search is completed, this list contains all of the matches found.

As the user reviews the matches found, entries are taken off this list and placed on the review list ^TMP("LEXHIT”) until the user either selects an entry, terminates the selection process by entering an up-arrow (^), or reaches the end of the list. As the user continues to review the matches found, this list continues to shrink until it no longer exists.

8.2 Matches Reviewed ^TMP("LEXHIT",$J)

The Lexicon begins to build this list only after the search has completed. This list is initially populated with the first few entries to be reviewed by the user (the exact number is determined by the third input parameter of LOOK^LEXA). Entries on this list are ordered sequentially from one to the total number of matches reviewed by the user.

As the user reviews the matches found, entries are added to this list from the list of matches found in ^TMP("LEXFND") until the user either selects an entry, terminates the selection process by entering an up-arrow ("^"), or reaches the end of the list. As the user continues to review the matches found, this list continues to grow until it contains all of the matches found.

8.3 Matches Displayed LEX("LIST")

This list contains only those entries to be displayed. The length of this list does not exceed the list length as specified by the calling application in the third input parameter of LOOK^LEXA. If the list length is not specified by the calling application, then the default list length is set to 5.

8.4 Example Search

The user searches the Lexicon with the following results:

Matches found	20
List Length (specified by the calling application)	5

Initially the list of matches found in ^TMP("LEXFND") would contain 20 entries; however, when the search is completed and the selection process begins, the first five (5) entries are taken off the list of matches found in ^TMP("LEXFND") and placed on both the review list in ^TMP("LEXHIT") and the display list in LEX("LIST"). The calling application should display the contents of the display list LEX("LIST") for the user to review.

If the user does not select one of the first five (5) entries on the display list in LEX("LIST") and presses Return to review the next five, then an additional five entries are taken from the list of matches found in ^TMP("LEXFND") and placed on the review list in ^TMP("LEXHIT") with only the current five entries being placed on the display list in LEX("LIST"). The calling application should again only display the five entries on the display list LEX("LIST").

As long as the user does not make a selection, and keeps pressing Return, entries are taken from the list of matches found in ^TMP("LEXFND") and placed on the review list in ^TMP("LEXHIT") with the current five entries on the display list in LEX("LIST"). Once the user gets to the end of the list, the list of matches found in ^TMP("LEXFND") is depleted, and the list of entries reviewed in ^TMP("LEXHIT") has 20 entries. The display list in LEX("LIST") always has the number of entries specified by the calling application (in this case, five).

If the user has reviewed some or all of the matches found and decides to jump backwards on the list, then the display list in LEX("LIST") is populated from the list of entries reviewed in ^TMP("LEXHIT").

9. Unresolved Narratives

It is possible for users and applications to provide feedback from the sites regarding the content of the Lexicon. This is done either by a user through a calling application (user unresolved narratives) or by the calling application (application unresolved narratives).

Which applications should use Unresolved Narratives? Chances are if the vocabulary which the targeted users are employing is subject to a myriad of synonyms and lexical variants (e.g. plurals, singular form, etc.), then the application should use the Unresolved Narrative functionality. Applications which would not want to use Unresolved Narratives are those which use an extremely controlled vocabulary where a single concept has only one acceptable form or if adding terminology would disrupt the content and purpose of the controlled vocabulary.

9.1 User Unresolved Narratives

There are three prerequisites the calling application must meet to use and return User Unresolved Narratives:

1. The calling application must be able to store the text within the calling application or store the text in an alternate file (i.e., the Provider Narrative file) and point to the text.
2. The calling application must be defined in the Subset Definition file (#757.2).
3. The Unresolved Narrative flag in the Subset Definition file for the calling application must be set to 1.

There are two prerequisites the Lexicon must meet to save and return the User Unresolved Narrative:

1. The lookup must have completed with no selection made. This is determined by the absence of the following arrays:

^TMP("LEXFND",$J)

^TMP("LEXHIT",$J)

LEX("LIST")

LEX("SEL")

2. The Lexicon must have knowledge of the conditions under which the User Unresolved Narrative occurred. This is determined by the presence of the array:

   ^TMP("LEXSCH",$J)

   When a User Unresolved Narrative occurs, and the conditions above are met, the calling application may store and return the User Unresolved Narrative by calling the entry point:

   EN^LEXAR(<user unresolved narrative text)

When this is done, the User Unresolved Narrative is temporarily stored in the Unresolved Narratives file (757.06). Periodically the Lexicon Utility packs the entries in this file into a mail message and sends them to G.LEXICON@ISC-SLC.VA.GOV for consideration for inclusion in the Lexicon. After the Lexicon Utility sends this message, it deletes the entries in this file.

The following information about the narrative and the conditions of the search may be returned to the development center:

Narrative	Mandatory	User Input
Date-Time	Mandatory	When the search was conducted
Search String	Mandatory	Actual search string
Matches	Mandatory	Number of matches found
Application	Mandatory	Name of the calling application
Service	Optional	Service of the user
File	Mandatory	Number of file searched
Index	Mandatory	Name of the index used
Shortcuts	Optional	Name of the Shortcut set used
Screen	Optional	Screen used (MUMPS code)

User Unresolved Narratives received at the development center are reviewed and classified as:

1. A valid expression to be linked (e.g., synonym or lexical variant).
2. A valid expression to be added (no equivalent concept in the current version).
3. A valid expression in the current version containing a spelling error, acronym, or abbreviation not previously defined. Only the spelling error, acronym, or abbreviation is linked to the existing expression while the remainder of the expression is ignored.
4. A valid expression in the current version.
5. An invalid expression is ignored (e.g., XXXX?).

If the User Unresolved Narrative is included in a future release of the Lexicon and exported to the site, it becomes the responsibility of the calling application to resolve the entry at the site. The Problem List application is the only exception at this time. When a new release of the Lexicon Utility is installed at a site, the Problem List is updated by a series of routines (LEXPL*) called by the Lexicon Utility's Post-Install.

9.2 Application Unresolved Narratives

The purpose of this type of unresolved narrative is to permit the calling application to return a comment about an existing term in the Lexicon. This occurs when an application detects a problem with an expression in the Expression file (757.01). The application can return the Internal Entry Number (IEN) of that expression along with a short comment stating the problem. These commented, unresolved narratives are also temporarily stored and periodically packed up into a mail message that is sent to G.LEXICON@ISC-SLC.VA.GOV. However, instead of considering these narratives for inclusion in the Lexicon (since they already exist), the problem stated in the comment field is reviewed and action is taken where appropriate.

There are no prerequisites for the calling application; however, the lookup for the Lexicon must not be engaged (determined by the absence of all Lexicon variables and arrays).

The following information about the expression is returned to the development center:

Narrative	Mandatory	User Input
Expression	Mandatory	Pointer to file #757.01
Comment	Mandatory	Brief description of the problem

When an Application Unresolved Narrative occurs, the calling application may store and return the Application Unresolved Narrative by calling the entry point:

EN^LEXAR(<IEN^Comment>)

An application comment is in the general format IEN^COMMENT, where IEN is a pointer to an expression in the Expression file (757.01) and the COMMENT is a text string comment about the expression.

Examples of application comments might be:

IEN^Diagnostic term maps to 799.9

This type of comment might be used by an application which requires a valid ICD with a diagnostic term (as is the case with Problem List). If the Lexicon returns the term without an ICD or with ICD code not found in the ICD Diagnosis file (#80), then the application could take advantage of this entry point to instruct the developers of the Lexicon to have Medical Records Technicians look at, evaluate, and match the term to an appropriate ICD code for future iterations of the Lexicon.

IEN^RBBB suggested shortcut for Right bundle branch block

This type of comment might be used when the user input RBBB fails to return a selection list, and on a subsequent search the user entered bundle branch block and selected Right bundle branch block, implying that RBBB was intended to have found Right bundle branch block.

10. Re-indexing the Lexicon

For re-indexing, the Lexicon can be divided into two types of files: Those which can be re-indexed independently and those which are re-indexed conditionally. If there is a need to re-index the Lexicon, the files should be re-indexed as follows.

These files may be independently re-indexed.

757	Major Concept Map
757.011	Expression Type
757.014	Expression Form
757.03	Coding System
757.033	Character Positions
757.04	Excluded Words
757.06	Unresolved Narratives
757.11	Semantic Classes
757.12	Sub-Set Definitions
757.3	Lookup Screens
757.32	Mapping Definitions
757.33	Mappings
757.4	Shortcuts
757.41	Shortcut Context

These files have conditions placed on the re-indexing.

757.01 Expressions

Immediately after re-indexing this file, re-index the Replacement Word file #757.05 (also see 757.05 listed below).

WARNING: This file cannot be re-indexed using FileMan with users on the system. Use either ONE^LEXRX or POST^LEXXGI4 instead.

`ONE^LEXRX` This entry point re-indexes/repairs one file with users on the system. When prompted for a file number, enter 757.01.

`POST^LEXXGI4` This entry point re-indexes/repairs all of the lexical cross-references with users on the system. This is the entry point normally called by a Lexicon patch post-install routine during global import. It will repair the "AWRD" and "ASL" indexes in the EXPRESSIONS file #757.01 and all of the "A" namespaced indexes in the SUBSET file #757.21.

757.02 Codes

Re-index the Coding Systems file #757.03 first.

757.05 Replacement Words

Re-indexing of this file depends on indexes in the Expressions file #757.01. If the indexes in file #757.01 are intact and current,

	then proceed with re-indexing of the Replacement Word file; otherwise, re-index file #757.01 first.
757.1	Semantic Map Re-index both the Semantic Class file #757.11 and the Semantic Type file #757.12 first.
757.21	Sub-Sets Re-indexing of this file depends on indexes in the Sub-Set Definition file #757.2. If the indexes in file #757.2 are intact and current, then proceed with re-indexing of the Sub-Sets file; otherwise, re-index file #757.2 first.

11. Subsets

Subsets, also known as vocabularies, are a collection of terms from the Lexicon that serve a specific purpose or discipline. There are two types of Subsets:

11.1 Logical Subset

This is a collection of terms found in the Lexicon that are set apart from the main Lexicon content through the use of filters and screens similar to Fileman's DIC("S").

Example: The "CPT/HCPCS Procedures" subset is artificially created through the use of a filter which will not permit the selection of a term that is not linked to a valid CPT-4 or HCPCS procedure.

11.2 Physical Subset

This is a collection of terms found in the Lexicon that have been physically set apart from the main Lexicon content by storing the terms in the Subset file 757.21. A physical subset has the advantages of being faster... essentially, it is searching a shorter list. As a result, the search does not need to inspect hundreds of records to determine if the term is contained in a subset. A physical subset has two disadvantages: First, if the physical subset is large, it will significantly increase the disk space requirements for the Lexicon global. Secondly, a physical subset requires constant maintenance (any change made in the Expression file 757.01 needs to be reflected in the Subset file 757.21).

Example: The "Nursing" subset contains terminology from the North American Nursing

Diagnosis Association (NANDA), the Nursing Intervention Classification (NIC) and the Omaha Nursing Diagnosis classification systems and is physically stored in the Subset file 757.21.

11.3 Application Subset

An application subset can be either a Logical or Physical Subset. It is developed specifically for an application. An application may have one (primary) or more (secondary) subsets. The application subset will contain the applications namespace on the primary subset and an abbreviated namespace on all secondary subsets. The primary subset will also contain the file number where the pointer to the Lexicon is stored. the Expression file 757.01 needs to be reflected in the Subset file 757.21).

Example: Problem List subset is an application subset created for the Problem List application. It contains the namespace of GMPL and the file number of 9000011. It has a primary subset (PL1) which filters on semantic classes and types and a secondary subset (PL2) which filters on coding system (ICD-9 only).

11.4 Creating an Application Subset

Applications requiring a subset would coordinate with a Lexicon developer for the creation, addition and export of the application subset to the field. The following information will be needed:

Field	Field Content	Comment
.01	Subset Name:	3-35 characters (required)
1	Index Mnemonic:	3 characters, only used for physical subsets. If this is a logical subset, leave this field blank.
2	Global Reference:	For a physical subset use LEX(757.21, and for a logical subset use LEX(757.01,
3/4	Help Routine:	XTLK^LEXHLP (Only used by Kernel Multi-Term Lookup Utility when the MTLU is called)
5/6	Display Routine:	XTLK^LEXPRNT(Only used by Kernel Multi-Term Lookup Utility when the MTLU is called)
7	Display Codes:	This is a string containing a series of coding source abbreviations delimited by the slash "/" character. This string can be used by the display routine. Select from: ICD ICD-9-CM Diagnosis ICP ICD-9 Procedures CPT CPT-4 Procedures CPC HCPCS Procedures DS3 DSM-IIIR Diagnosis DS4 DSM-IV Diagnosis SNM SNOMED 2 NAN NANDA Nursing Diagnosis NIC Nursing Intervention

Field	Field Content	Comment
		NOC Nursing Outcomes HHC Home Health Care Diagnosis OMA Omaha Nursing Diagnosis SCC Title 38 Diagnosis/Disabilities ACR Radiological Diagnosis AIR AI/RHEUM Disease/Findings COS COSTAR Term File CST COSTART Adverse Reaction Terms CSP CRISP Scientific Terms DXP DXPLAIN Diagnosis MCM Glossary of Epidemiology Terms UMD Universal Medical Devices UWA Glossary of Neuronames 10D ICD-10-CM Diagnosis 10P ICD-10-PCS Procedures MSH MeSH Medical Subject Headings LCH Library of Congress Headings MTH UMLS Metathesaurus DOR Dorland's Medical Dictionary UND Undefined LNC LOINC RVC Reason for Visit Codes DMI DoD DMIS ID's MTF DoD Military Treating Facilities PRB Problem List Code Set SCT SNOMED CT (Clinical Terms) BIR BI-RADS
8	Application Mnemonic	3 characters that represent the application. The last character should be unique to the mnemonic if the application is to have multiple subsets, for example, the Problem List has PL1 and PL2.
9	Application Index	3 characters that represent the cross-reference to be used during lookup. For a logical subset this would be "WRD" for the "AWRD" cross-reference found in file 757.01. For a physical subset this can be any three character that when appended with a leading "A" character the cross-reference can be found in file 757.21. Normally this value is "WRD"
10	Application filter	For a logical subset, this is MUMPS code in the form of an IF statement that when evaluated produces a true (1) or false (0) value. It is the same as FileMan's DIC("S") screen.
11	Application Display Codes	This is a string containing a series of coding source abbreviations delimited by the slash "/" character. It is generally identical to the Display Codes used for Kernel's MTLU. (see field 7)

Field	Field Content	Comment
12	Application User Defaults	Set this value to 1 if the application is to allow the user to have default filters, vocabularies and display values. Set this value to 0 if the application will not allow user defaults. This should generally be set to 0 (zero)
13	Application File Number	This is the file number that points to the Lexicon.
14	Application Namespace	This is the applications namespace (from file #9.4)
15	Unresolved Narratives	This is unique for Problem List. If not the Problem list then enter a 0 (zero).
16	Override User Defaults	Set of Codes: Set this value to 1 if the application's filter, vocabulary and display will override the user's default values. Set this value to 0 if the application will not override the user defaults.
17	Shortcut Context	No longer used, leave blank
18	User Modifiers	No longer used, leave blank
100	Description	Free Text - This is a one or two sentence describing the purpose of the subset and its usage.

12. Integration Control Registrations (ICRs) Summary

12.1 ICRs with Lexicon as the Custodian

12.1.1 Retired/Withdrawn

File

ICR	File	Scope	Subscriber	Status	Date
457	^GMP(757.01,	Supported	N/A	Next Ver	APR 26,1994
5387	^LEX(757/03,	Private	RA	Withdrawn	MAR 16,2009

Routine

ICR	Routine	Scope	Subscriber	Status	Date
339	GMPTDUSR	Private	PL	Retired	MAY 19,2003
340	GMPTSET	Private	PL	Retired	MAY 19,2003
1512	LEXU	Private	AICS	Retired	MAR 8,1996
1577	LEXSET	Controlled	PL	Retired	AUG 8,1996
1578	GMPTSET	Controlled	PL	Withdrawn	AUG 8,1996
2288	LEXU	Supported	N/A	Withdrawn	FEB 3,1998
10148	GMPTU	Supported	N/A	Retired	NOV 22,2011

12.1.2 Active/Pending

File

ICR	File	Scope	Subscriber	Status	Date
1571	^LEX(757.01,	Supported	N/A	Active	AUG 7,1996
6224	^LEX(757.5,	Controlled	PX, PXRM	Active	Aug 26, 2015

Routine

ICR	Routine	Scope	Subscriber	Status	Date
1511	GMPTU	Private	AICS	Active	MAR 8,1996
	ICDONE				
1573	LEXU	Supported	N/A	Active	AUG 7,1996
	$$ICDONE(IEN,DATE) $$ICD(IEN,DATE) $$CPTONE(IEN,DATE) $$DSMONE(IEN)				
1597	LEXA	Supported	N/A	Active	AUG 18,1996
	INFO(IEN,DATE)				
1599	LEXDFL	Private	PL	Active	AUG 19,1996
	EN1(LEXAP)				
1601	LEXDCC	Private	PL	Active	AUG 19,1996
	EN1(LEXAP)				
1603	LEXDVO	Private	PL	Active	AUG 19,1996
	EN1(LEXAP)				
1605	LEXDCX	Private	PL	Active	AUG 19,1996
	EN1(LEXAP)				
1607	LEXDDS	Private	PL	Active	AUG 19,1996
	EN1(LEXAP)				
1609	LEXSET	Supported	N/A	Active	AUG 19,1996
	CONFIG(LEXNS,LEXSS,DATE)				
1614	LEXCODE	Supported	N/A	Active	AUG 20,1996
	EN(LEXSO,DATE)				
2950	LEXA	Supported	N/A	Active	APR 16,2003
	LOOK(LEXX,LEXAP,LEXLL,LEXSUB,DATE)				
4083	LEXSRC2	Supported	N/A	Active	APR 14,2003
	$$STATCHK(CODE,DATE,.LEX,SAB)				
4912	LEXTRAN	Supported	N/A	Active	OCT 5,2006
	$$CODE(CODE,SOURCE,DATE,ARRAY)				
4913	LEXTRAN	Supported	N/A	Active	OCT 5,2006
	$$TEXT(TEXT,DATE,SUBSET,SOURCE,ARRAY)				
4914	LEXTRAN	Supported	N/A	Active	OCT 5,2006
	$$TXT4CS(TEXT,SOURCE)				
5006	LEXTRAN1	Supported	N/A	Active	JUN 28,2007
	$$GETSYN(LEXSRC,LEXCODE,LEXVDT,LEXRAY,LEXIENS)				
5007	LEXTRAN1	Supported	N/A	Active	JUN 28,2007
	GETFSN(LEXSRC,LEXCODE,LEXVDT)				
5008	LEXTRAN1	Supported	N/A	Active	JUN 28,2007
	$$GETPREF				
5009	LEXTRAN1	Supported	N/A	Active	JUN 28,2007
	$$GETDES(LEXSRC)				
5010	LEXTRAN1	Supported	N/A	Active	JUN 28,2007
	GETASSN(LEXCODE,LEXMAP,LEXVDT,LEXRAY)				
5011	LEXTRAN	Supported	N/A	Active	JUN 28,2007

ICR	Routine	Scope	Subscriber	Status	Date
	$$VERSION(LEXSRC,LEXCODE,LEXVDT)				
5386	LEXU	Supported	N/A	Active	MAR 13,2009
	$$SC(Y,STRING,DATE) $$SO(Y,STRING,DATE)				
5252	LEXASCD	Supported	N/A	Pending	AUG 8,2008
	$$SC(ICD,VBA,EFF,.ARY) $$DI(ICD,EFF,ARY) $$DX(VBA,EFF,ARY)				
5547	LEXLR	Controlled	LR/DSS	Pending	JUL 23,2010

	$$CHKCODE(LEXCODE)
	$$GETCODE(LEXCIEN)
	GETNAME(LEXINPT,LEXINTY,.LEXNAME)
	$$STATUS(LEXINPT,LEXINTY)
	GETREC(LEXINPT,LEXINTY,.LEXREC)
	$$VERSION()
	COMLST(LEXCOM,LEXARR)
	DEPLST(LEXARR)				

5679	LEXU	Supported	N/A	Pending	JUN 3,2011
	$$D10ONE(IEN,DATE) $$D10(IEN,DATE) $$P10ONE(IEN,DATE) $$ONE(IEN,DATE,SAB) $$ALL(IEN,DATE,SAB) $$IMPDATE(SAB) $$DX(IEN,DATE)				
5680	LEXCODE	Supported	N/A	Pending	JUN 3,2011
	$$EXP(CODE,SAB,DATE)				
5681	LEX10CS	Supported	N/A	Pending	JUN 6,2011
	$$ICDSRCH(TEXT,.ARRAY,DATE,LEN,FILTER) $$DIAGSRCH(TEXT,.ARRAY,DATE,LEN,FILTER) $$PCSDIG(FRAG,DATE) $$CODELIST(SYS,SPEC,.ARRAY,DATE,LEN,FMT)				
5840	LEX10CX	Controlled	OR/IBD/PL	Pending	SEP 6, 2012

	EN
	EN2(CODE,SAB)
	EN3(CODE,SAB,.ARY,MAX)				

6225	LEXMUCUM	Controlled	PX/PXRM	Active	AUG 26, 2015

	UCUMCODE(IEN)
	UCUMDATA(IDEN,.UCUMDATA)
	VERSION(.VERDATA)				

6265	LEXU	Supported	N/A	Pending	NOV 16, 2015
	$$EXP^LEXU(IEN) EXPS^LEXU(IEN,CDT,.ARY) $$PREF^LEXU(COD,SAB,CDT) $$IENS^LEXU(CODE,.ARY,CDT) $$SOS^LEXU(IEN,.ARY,SYN) $$EXM^LEXU(TEXT,.ARY,DF,MC) CODE^LEXU(CODE,SRC,CDT,.ARY,OUT) TERM^LEXU(IEN,CDT,.ARY,OUT) $$PRF(LEX,LEXVDT,LEXSAB) $$SUBSETS(CODE,SRC,.ARY)				
6266	LEXXMC	Supported	N/A	Pending	NOV 16, 2015
	$$MIX(TEXT)				
6267	LEXA	Supported	N/A	Pending	NOV 16, 2015

ICR	Routine	Scope	Subscriber	Status	Date
	LOOK(X,AP,LL,SUB,CDT,SRC,CAT,FMT)				
6472	LEXTRAN1	Supported	N/A	Pending	AUG 23, 2016
	$$GETDID^LEXTRAN1(SRC,IEN)				

12.2 ICRs with Lexicon as the Subscriber

12.2.1 Retired/Expired/Withdrawn

File

ICR	File	Scope	Custodian	Status	Date
321	^LEX(757.01,	Private	DI	Expired	APR 3,2007
3997	^AUTNPOV(	Private	PL	Withdrawn	MAR 12,2003
4012	^DIC(9.8,	Private	XU	Withdrawn	MAR 18,2003

Options

ICR	Option	Scope	Custodian	Status	Date
857	XLTKUSER2	Private	XT	Retired	FEB 4, 1994

12.2.2 Active/Pending

File

ICR	File	Scope	Custodian	Status	Date
345	^DD(	Private	DI	Active	FEB 2, 1994
346	^XT(8984.1,	Private	XT	Active	FEB 4, 1994
510	^DISV(	Controlled	DI	Active	JUL 27, 1989
854	^XT(8984.2,	Private	XT	Active	FEB 4, 1994
855	^XT(8984.3,	Private	XT	Active	FEB 4, 1994
856	^XT(8984.4,	Private	XT	Active	FEB 4, 1994
872	^ORD(101,	Controlled	XU	Active	APR 28, 1994
888	^DD(8984.1,	Private	DI	Active	MAY 16, 1994
889	^DD(8984.2,	Private	DI	Active	MAY 16, 1994
890	^XT(8984.2,	Controlled	XT	Active	MAY 16, 1994
891	^XT(8984.3,	Controlled	XT	Active	MAY 16, 1994
916	^DIC(	Controlled	DI	Active	JUL 25, 1994
1611	^AUPNPROB(	Private	PL	Active	AUG 20, 1996
3779	^DIC(4.2,	Controlled	MM	Active	OCT 7, 2002
4184	^XPD(9.7,	Private	XU	Active	OCT 22, 2004
4475	^DD(	Private	FM	Active	JAN 25, 2006
4485	^ICD9(	Private	ICD	Active	JUL 28, 2004
4486	^ICD0(	Private	ICD	Active	JUL 28, 2004
4487	^ICD(	Private	ICD	Active	JUL 28, 2004
4488	^ICM(	Private	ICD	Active	JUL 28, 2004
4489	^ICPT(	Private	ICPT	Active	JUL 28, 2004
4490	^DIC(81.1,	Private	ICPT	Active	JUL 28, 2004
4491	^DIC(81.2,	Private	ICPT	Active	JUL 28, 2004
4492	^DIC(81.3,	Private	ICPT	Active	JUL 28, 2004
4494	^LEX(757.01,"B",	Private	DI	Active	APR 3, 2007
4797	^XT(8984.4,	Controlled	XT	Pending	SEP 21, 2005
5038	^DD(D0,0,"IX"	Private	DI	Active	NOV 6, 2007
5749	^DD “VR”	Private	DI	Active	NOV 30,2011

12.3 ICRs Supporting Lexicon External References

12.3.1 External Global References

Global Reference	ICR	Comment
^%ZOSF("PROD"	10096	Production Account
^%ZOSF("TEST"	10096	Test for Routine
^%ZOSF("UCI"	10096	Get Account UCI
^AUPNPROB(	1611	Unresolved Narratives
^AUTNPOV(	1593	Unresolved Narratives
^DD(757*,FLD)	345	Get Field Location
^DD(8984.1)	888	MTLU
^DD(8984.2)	889	MTLU
^DD(757.02)	4475	Control SAB list
^DD(file,0,”VR”)	5749	File Version
^DD(file,0,”VRpk”)	5749	File Package
^DD(file,0,”VRrv”)	5749	File Revision
^DD(757*,0,'IX')	5038	Get Cross-References
^DIC(19	10075	Option file
^DIC(49	10093	Service/Section Defaults
^DIC(81.3	4492	CPT Modifier file
^DIC(9.4	10048	Package file
^DIC(9.8		No longer used (LEXXST2/3)
^DISV(	510	Special Lookup Save X
^ICD(	4487	DRG
^ICD0(	4486	ICD Procedures
^ICD9(	4485	ICD Diagnosis
^ICM(	4488	ICD Major Diagnostic Category
^ICPT(	4489	CPT file
^ORD(101	872	Protocol file
^TMP("LEX*",$J,	SACC 2.3.2.5.1	Temporary Storage
^TMP($J,"LEX*",	SACC 2.3.2.5.1	Temporary Storage
^UTILITY($J,	10011	Parsing with DIWP
^VA(200	10060	Grandfathered
^XPD(9.6		No longer used (LEXXST3)
^XPD(9.7		No longer used (LEXXST3)
^XT(8984.4	856	MTLU
^XTMP(	SACC 2.3.2.5.2	Long Term Controlled Storage
^YSD(627.7	1612	Mental Health DSM file

12.3.2 External Routine References

External Call	ICR
^%DT	10003
NOW^%DTC	10000
%XY^%RCR	10022
^%ZIS	10086
HOME^%ZIS	10086
^%ZISC	10089
%ZTLOAD	10063
$$S^%ZTLOAD	10063
^DIC	10006
FIND^DIC	2051
IX^DIC	10006
MIX^DIC1	10007
FILE^DICN	10009
YN^DICN	10009
FILE^DID	2052
^DIE	10018
^DIK	10013
IX1^DIK	10013
IX2^DIK	10013
^DIM	10016
$$GET1^DIQ	2056
GETS^DIQ	2056
^DIR	10026
^DIWP	10011
$$STATCHK^ICDAPIU	3991
HIST^ICDAPIU	3991
$$CODEN^ICDCODE	3990
$$ICDD^ICDCODE	3990
$$ICDDX^ICDCODE	3990
$$ICDOP^ICDCODE	3990
ICDD^ICDCODE	3990
DRGD^ICDGTDRG	4052
$$STATCHK^ICDXAU	5685
HIST^ICDXAU	5685
$$DX^ICDXCD	5684
$$LD^ICDXCD	5684
$$PR^ICDXCD	5684
$$SD^ICDXCD	5684
LK^ICDXLK	5686
$$STATCHK^ICPTAPIU	1997
HIST^ICPTAPIU	1997

External Call	ICR
$$CPT^ICPTCOD	1995
$$CPTD^ICPTCOD	1995
CPTD^ICPTCOD	1995
$$MOD^ICPTMOD	1996
$$MODD^ICPTMOD	1996
MODA^ICPTMOD	1996
MODD^ICPTMOD	1996
$$DT^XLFDT	10103
$$FMADD^XLFDT	10103
$$FMDIFF^XLFDT	10103
$$FMTE^XLFDT	10103
$$NOW^XLFDT	10103
$$LOW^XLFSTR	10104
$$UP^XLFSTR	10104
^XMD	10070
BMES^XPDUTL	10141
MES^XPDUTL	10141
EN^XQOR	10140
XTLKKWL	10122
$$DTIME^XUP	4409

13. Package Security

Package Security for the Lexicon Utility is maintained through option assignments and VA FileMan Security Codes. We recommend that options and menus be assigned as shown below:

Options recommended for all users:

Option Name	Menu	Routine
Lexicon Utility	LEX UTILITY	Menu
Lookup Term	LEX LOOK-UP	LEXLK
User Defaults	LEX USER DEFAULTS	Menu
Filter	LEX USER FILTER	EN^LEXDFL
Display	LEX USER DISPLAY	EN^LEXDCC
Vocabulary	LEX USER VOCABULARY	EN^LEXDVO
Shortcuts	LEX USER SHORTCUTS	EN^LEXDCX
List Defaults	LEX USER DEFAULT LIST	EN^LEXDDS

Options recommended for managers only:

Option Name	Menu	Routine
Lexicon Management Menu	LEX MGT MENU	Menu
Defaults	LEX MGR DEFAULTS	Menu
Edit User/User Group Defaults	LEX MGR USER DEFAULTS	LEXDMG
Edit User/User Group Defaults	LEX MGR LIST DEFAULTS	LEXDD1
Edit Lexicon	LEX MGR EDIT LEXICON	Menu
Edit Term Definition	LEX MGR EDIT DEFN	LEXEDF1
Edit Shortcuts by Context	LEX MGR EDIT SHORTCUTS	LEXSC

13.1 Use of data by Salt Lake City IRM Field Office Developers:

Unresolved Narratives:

To expand the Lexicon Utility’s terms, synonyms, abbreviations, etc., the Salt Lake City IRM Field Office developers have created a program which captures and stores user-entered terminology that doesn’t match existing Lexicon terminology.

When users conduct searches in the Lexicon Utility and a match is not found, the text that is entered is saved into the Unresolved Narratives file (#757.06). When the file contains 50 entries, a mail message is generated to transmit the contents of this file to the developers and then entries are purged from the file. This terminology is considered for inclusion in future releases of the Lexicon Utility.

Term Definitions:

When a site edits the content of the Definition field in the Expression file (#757.01), the changes are recorded and a mail message is generated sending the changes to the Salt Lake City IRM Field Office developers. The changes are considered for updating the Lexicon Utility.

VA FileMan Security Codes:

All files are exported with the following security codes:

Action	Security Code
DD	@
Delete	@
Read	@
LAYGO	@
Write	@

14. SACC Exemptions/Non-Standard Code

A SACC exemption was granted on May 9, 2013 to the Clinical Lexicon package (distribution package for ICD data) for the purpose of enabling unsubscripted global kills in the pre-install using FileMan DIU2 utility. This is used when a “full file” distribution is made (delete file 80/80.1 and replace). The exemption reads as follows:

> Clinical Lexicon requests an exemption to use $ZU in the pre and post install routines for future LEX patches. This exemption will expire with the release of LEX 3.0. Calling $ZU(68,28,0) to enable an unsubscripted global kill prior to installing the latest ICD files leaves the possibility that a global will be killed by another process during a lengthy installation. Placing the call in the pre (or post) install, instead of making the call manually before and after the install, cuts this window down to a few seconds.

15. Appendix A: Classification Systems

ID	Nomenclature	Name	Total Codes	Total Unique
ICD	ICD-9-CM	ICD-9 Diagnosis Clinical Mod	22835	14846
ICP	ICD Proc	ICD-9 Procedures	1021	649
10D	ICD-10-CM	ICD-10 Diagnosis Clinical Mod	69833	69833
10P	ICD-10-PCS	ICD-10 Procedure Coding System	71918	71918
CPT	CPT-4	Current Procedural Terminology	12869	10603
CPC	HCPCS	Current Procedural Codes	9111	8208
DS3	DSM-IIIR	Diagnostic & Stat of Mental Disorders	247	187
DS4	DSM-IV	Diagnostic & Stat of Mental Disorders	404	269
SNM	SNOMED 2	Systematized Nomenclature of Medicine	11102	6815
NAN	NANDA	Classification of Nursing Diagnosis	111	106
NIC	NIC	Nursing Intervention Classifications	341	336
HHC	HHCC	Home Health Care Component	115	115
OMA	Omaha	Omaha Nursing Diagnosis	80	76
SCC	SCC	Service Connected Disabilities	758	758
ACR	ACR	Index for Radiological Diagnosis	119	118
AIR	AI/Rheum	Disease/Findings Knowledge Base	755	751
COS	COSTAR	Computer Stored Ambulatory Records	1391	1385
CST	COSTART	Coding Symbols Adverse Reaction Terms	1669	1123
CSP	CRISP	Computer Retrieval of Info. on Sci Proj	5121	4586
DXP	DxPlain	Diagnostic Prompting System	490	487

ID	Nomenclature	Name	Total Codes	Total Unique
MCM	McMaster	Glossary of Epidemiology Terms	18	18
UMD	UMDNS	Universal Med Device Nomenclature Sys	78	78
SCT	SNOMED CT	SNOMED Clinical Terms	407932	395033

16. Appendix B: Semantic Classes and Types

1. Activities ACT

Event 51

A broad type for grouping activities, processes, and states. The children of this type are Activity and Phenomenon or Process.

Activity 52

An operation or series of operations that an organism or machine carries out or participates in. The children of this type are Behavior, Daily or Recreational Activity, Occupational Activity, and Machine Activity. Examples include Development Planning, Expeditions, Information Distribution, Migration, and Voting.

Daily or Recreational Activity 56

An activity carried out for recreation or exercise. Examples include Swimming, Camping, Child Care, and Exercise.

Occupational Activity 57

An activity carried out as part of an occupation or job. The children of this type are Health Care Activity, Research Activity, Governmental or Regulatory Activity, and Educational Activity. Examples include Financial Management, Collective Bargaining, Commerce, and Book Classification.

Health Care Activity 58

An activity of or relating to the practice of medicine or involving the care of patients. The children of this type are Diagnostic Procedure, Laboratory Procedure, and Therapeutic or Preventive Procedure. Examples include Preventive Health Services, Ambulatory Care, Clinic Activities, and Geriatric Nursing.

Research Activity 62

An activity carried out as part of research or experimentation. This type has one child in the network, Molecular Biology Research Technique. Examples include Study Design, Animal Experimentation, Biomedical Research, and Cluster Analysis.

Governmental or Regulatory Activity 64

An activity carried out by officially constituted governments, or an activity related to the creation or enforcement of the rules or regulations governing some field of endeavor. Examples include Facility Regulation and Control, Public Assistance, Credentialing, and Certification.

Educational Activity 65

An activity related to the organization and provision of education. Examples include Community Health Education, Preceptorship, Academic Training, and Family Planning Training.

Machine Activity 66

An activity carried out primarily or exclusively by machines. Examples include Air Conditioning, Equipment Failure, Natural Language Processing, Computer Simulation, and Word Processing.

Phenomenon or Process 67

A process or state which occurs naturally or because of an activity. The children of this type are Human-caused Phenomenon or Process, Natural Phenomenon or Process, and Injury or Poisoning. Examples include Disasters, Famine, and Noise.

Human-caused Phenomenon or Process 68

A phenomenon or process that is a result of the activities of human beings. If the term refers to the activity itself, rather than the result of that activity, a type from the Activity hierarchy is assigned instead. This type has one child in the network, Environmental Effect of Humans. Examples include Social Change, Baby Boom, and International Cooperation.

Environmental Effect of Humans 69

A change in the natural environment that is a result of the activities of human beings. Examples include Water Pollution, Acid Rain, Soil Degradation, and Smog.

Natural Phenomenon or Process 70

A phenomenon or process that occurs irrespective of the activities of human beings. This type has one child in the network, Biologic Function. Examples include Lightning, Air Movements, Sunlight, Biological Phenomena, and Corrosion.

2. Anatomy ANT

Anatomical Structure 17

A normal or pathological part of the anatomy or structural organization of an organism. If the term refers to a structure found only in non-humans, the Non-Human flag is assigned as well. Examples of this would be such terms as Feathers, Gills, and Horns. The children of this type are Embryonic Structure, Congenital Abnormality, Acquired Abnormality, and Fully Formed Anatomical Structure.

Embryonic Structure 18

An anatomical structure that exists only before the organism is fully formed; in mammals, for example, a structure that exists only prior to the birth of the organism. This structure may be normal or abnormal. Examples include Neural Crest, Blastoderm, and Fetal Heart.

Congenital Abnormality 19

An abnormal structure, or one that is abnormal in size or location, present at birth or evolving over time because of a defect in embryogenesis. Examples include Congenital cranial meningocel and Syndactylia.

Acquired Abnormality 20

An abnormal structure or one that is abnormal in size or location, found in or deriving from a previously normal structure. Examples include Hernia, Fistula, Hemorrhoids, and Varicose Veins.

Fully Formed Anatomical Structure 21

An anatomical structure in a fully formed organism; in mammals, for example, a structure in the body after the birth of the organism. The children of this type in the network are Body Part, Organ, or Organ Component, Tissue, Cell, Cell Component, and Macromolecular Structure. They are linked to each other by the part_of relationship in the network. Thus, a Macromolecular Structure is part of a Cell Component, which is part of a Cell, etc. A term is assigned to the most specific type available.

Body System 22

A complex of anatomical structures that performs a common function. Examples include Renin-Angiotensin System, Limbic System, Skeleton, and Reticuloendothelial System.

Body Part, Organ, or Organ Component 23

A collection of cells and tissues which are localized to a specific area or combine and carry out one or more specialized functions of an organism. This ranges from gross structures to small components of complex organs. These structures are relatively localized in comparison to tissues. Examples include Eye, Liver, Pulmonary Artery, and Laryngeal Mucosa.

Tissue 24

An aggregation of similarly specialized cells and the associated intercellular substance. Tissues are relatively non-localized in comparison to body parts, organs, or organ components. Examples include Cartilage, Epidermis, Basophilic muscle fibers, and Endothelium.

Cell 25

The fundamental structural and functional unit of living organisms. Examples include Erythrocytes, Dendritic Cells, and Histiocytes.

Cell Component 26

A part of a cell or the intercellular matrix, generally visible by light microscopy. Examples include Golgi Apparatus, Microsomes, and Organelles.

Body Location or Region 29

An area, subdivision, or region of the body demarcated for the purpose of topographical description. If the term refers to a body location or region found only in non-humans, the Non-Human flag is assigned as well. Examples include Abdomen, Thorax, Back, and Gluteal Region.

Body Space or Junction 30

An area enclosed or surrounded by body parts or organs or the place where two anatomical structures meet or connect. If the term refers to a body space or junction found only in non-humans, the Non-Human flag is assigned as well. Examples include Synapses, Peritoneal Cavity, Neuromuscular Junction, and Knee Joint.

Body Substance 31

Extracellular material, or mixtures of cells and extracellular material, produced, excreted, or accreted by the body. Included here are substances such as saliva, dental enamel, sweat, and gastric acid. If the term refers to a body substance found only in non-humans, the Non-Human flag is assigned as well. Examples include Saliva, Necrotic debris, Mucus, and Amniotic Fluid.

3. Behavior BEH

Behavior 53

Any of the activities of humans or animals that can be observed directly by others or can be made systematically observable by the use of special strategies. If the term refers to a behavior exhibited only by non-humans, the Non-Human flag is assigned as well. The children of this type are Social Behavior and Individual Behavior.

Social Behavior 54

Behavior that is a direct result or function of the interaction of humans or animals with their fellows. Examples include Interpersonal Relations, Social Conformity, Acculturation, and Communication.

Individual Behavior 55

Behavior exhibited by a human or an animal that is not a direct result of interaction with other members of the species, but which may have an effect on others. Examples include Assertiveness, Self Disclosure, Nail Biting, and Risk-Taking.

4. Chemicals and Drugs CHM

Chemical 103

Chemicals are viewed from two distinct perspectives in the network, functionally and structurally. Almost every chemical term is assigned at least two types, one from the structure hierarchy and at least one from the function hierarchy. The children of this type are Chemical Viewed Functionally and Chemical Viewed Structurally.

Chemical Viewed Structurally 104

A chemical viewed from the perspective of its structural characteristics. Included here are terms which can mean a salt, an ion, or a compound (e.g., Bromates and Bromides). The children of this type are Inorganic Chemical and Organic Chemical. Examples include Free Radicals, Onium Compounds, Salts, and Sulfur Compounds.

Inorganic Chemical 105

The general class of substances including the elements, their ionic and isotopic counterparts, and any chemical compound whose molecules are bound together ionically rather than covalently. This includes all compounds which do not contain carbon as a principal component. The children of this type are Element or Ion, Isotope, and Inorganic Compound. Examples include Electrolytes, Dithionite, and Technetium Tc 99m Sulfur Colloid.

Element or Ion 106

One of the 109 presently known kinds of substance that comprise all matter at and above the atomic level. This includes elemental metals, rare gases, and naturally occurring radioactive elements, as well as the ionic counterparts of elements. This does not include the less abundant isotopic forms, for which the type Isotope is assigned. Examples include Aluminum, Carbon, Uranium, Beryllium, and Oxygen Ion.

Isotope 107

A form of element having the same atomic number (i.e., the same number of protons), but differing in atomic weight or mass due to the presence of one or more additional neutrons. Included here are both stable and radioactive isotopes. Examples include Radioisotopes, Chromium Isotopes, Cobalt Radioisotopes, Co-58 (8), and Deuterium.

Inorganic Compound 108

A single compound, generally with ionic bonding, not containing carbon as a principal component (except carbides, carbonates, cyanides, cyanates, and carbon disulfide). The bonding between elements in inorganic compounds is generally ionic. Included here are inorganic acids and salts, alloys, alkalies, and minerals. Excluded are hydrocarbons. Examples include Ferrocyanide salt, Ammonia, and Aluminum Hydroxide.

Organic Chemical 109

The general class of carbon-containing compounds usually based on carbon chains or rings, and containing hydrogen (hydrocarbons), with or without nitrogen, oxygen, or other elements. The bonding between elements is generally covalent. The children of this type are Steroid, Eicosanoid, Lactam, Alkaloid, Nucleic Acid, Nucleoside, or Nucleotide, Organophosphorus Compound, Amino Acid, Peptide, or Protein, Carbohydrate, and Lipid.'Examples include Busulfan, Carotene, Trinitrobenzene, and Metanephrine.

Steroid 110

One of a group of polycyclic, 17-carbon-atom, fused-ring compounds occurring both in natural and synthetic forms. Included here are naturally occurring and synthetic steroids, bufanolides, cardanolides, homosteroids, norsteroids, and secosteroids. Examples include Bufanolides, Norandrostanes, 17-Hydroxycorticosteroids, and Prednisone.

Eicosanoid 111

A compound structurally related to arachidonic acid. Included here are arachidonic acid, eicosanoic acid, and saturated or unsaturated derivatives of each. Examples include Thromboxane B2, n-Eicosanoic acid, 8,11,14-Eicosatrienoic Acid, and Leokotriene C-4.

Lactam 112

A cyclic amide, usually with 4- or 5-membered rings that may or may not be fused to other rings, as in compounds structurally related to the penicillins and cephalosporins. Examples include Penicillanic Acid, Caprolactam, Alloxan, and Ticarcillin.

Alkaloid 113

A basic, nitrogen-containing compound of plant origin. Included here are aporphines, cinchona, curare, ergot, opium, belladonna, rauwolfia, and vinca alkaloids, among others. Examples include Quinidine, Aconitine, 3-Hydroxy-N-Methylmorphinan, Vincamine, and Rauwolfia Alkaloids.

Organophosphorus Compound 115

An organic compound containing phosphorus as a constituent. Included here are organic phosphinic, phosphonic and phosphoric acid derivatives and their thiophosphorus counterparts. Excluded are phospholipids and sugar phosphates. Examples include Phosphonoacetic Acid, Phosphoric Acid Esters, Diphosphonates, and Thiamine Triphosphate.

Carbohydrate 118

A compound consisting of carbon, hydrogen, and oxygen in which the hydrogen/oxygen ratio is the same as in water, and in which repeating units are joined through oxygen linkages. Carbohydrates are generally characterized as sugars and include mono-, di-, oligo-, and polysaccharides, glycosides, glycans, and starches. Included here are sugar phosphates. Excluded are glycolipids. Examples include Glycosides, Polysaccharides, Deoxyglucose, and Sepharose.

Lipid 119

A fat or fat-derived substance, such as fatty acids, fatty alcohols, and waxes. Included here are glyco- and phospholipids. Examples include Ceroid, Sphingolipids, Glycerides, and Calcifediol.

Chemical Viewed Functionally 120

A chemical viewed from the perspective of its functional characteristics or pharmacological activities. The children of this type are Pharmacologic Substance, Biomedical or Dental Material, Biologically Active Substance, Indicator or Reagent, and Hazardous or Poisonous Substance. Examples include Aerosol Propellants, Soaps, and Food Additives.

Pharmacologic Substance 121

A substance used in the treatment, diagnosis, prevention, or analysis of normal and abnormal body function. This includes substances that occur naturally in the body and are administered therapeutically. Examples include Codeine, Antipruritics, Ampicillin, Cardiovascular Agents, Insulin, and Ganglionic Blockaders.

Biomedical or Dental Material 122

A substance used in biomedicine or dentistry predominantly for its physical, as opposed to chemical, properties. Included here are biocompatible materials, tissue adhesives, bone cements, resins, etc. Examples include Anion Exchange Resins, Dental Casting Investment, Elastosil, Bone Cements, and Drug Implants.

Biologically Active Substance 123

A substance produced or required by an organism, of primary interest because of its role in the biologic functioning of the organism that produces it. The children of this type are Neuroreactive Substance or Biogenic Amine, Hormone, Enzyme, Vitamin, Prostaglandin, and Immunologic Factor. Examples include Myelin, Gastric Acid, Growth Substances, and Enzyme Precursors.

Neuroreactive Substance or Biogenic Amine 124

A biologic factor whose activities affect or play a role in the functioning of the nervous system. Included here are catecholamines, neuroregulators, neurophysins, etc. Examples include Catecholamine, Tryptamines, and Neurotensin.

Hormone 125

In animals, a chemical secreted by an endocrine gland that releases its products into the circulating fluid. Plant hormones or synthetic hormones that are used only to alter or control various physiologic processes, e.g., reproductive control agents, are assigned only to the type Pharmacologic Substance. Hormones act as chemical messengers and regulate various physiologic processes such as growth, reproduction, metabolism, etc. They usually fall into two broad classes, steroid hormones and peptide hormones. Examples include Gonadotropins, Epicortisol, Glucocorticoids, Pentagastrin, and MSH Release Inhibiting Hormone.

Enzyme 126

A complex protein that living cells produce and which catalyzes specific biochemical reactions. There are six main types of enzymes, oxidoreductases, transferases, hydrolases, lyases, isomerases, and ligases. Examples include ATP Citrate Lyase, Acetyl CoA Acetyltransferase, Complement Activating Enzymes, and Glucose Oxidase.

Vitamin 127

A substance, usually an organic chemical complex, present in natural products or made synthetically, which is essential in the diet of humans or other higher animals. Included here are vitamin precursors and provitamins. Examples include Vitamin A, Ascorbic Acid, Biotin, Riboflavin, and 25-Hydroxyvitamin D 2.

Prostaglandin 128

A member of the group of physiologically active compounds derived from arachidonic acid. Members of the group play major roles in the reproductive process, smooth muscle stimulation, blood pressure levels, inflammation, etc. Included here are prostacyclins, thromboxanes, and leukotrienes. Examples include Alprostadil, Prostaglandins F, Thromboxane A2, and Rioprostil.

Immunologic Factor 129

A biologic factor whose activities affect or play a role in the functioning of the immune system. Examples include Autocrine Motility Factor, Antilymphocyte Globulin, HIV Antigens, and Hepatitis surface antigen.

Indicator or Reagent 130

A substance used in laboratory reactions, or laboratory or diagnostic tests and procedures to detect, measure, examine, or analyze other chemicals, processes, or conditions. Examples include Contrast Media, Buffers, Affinity Labels, and Dansyl Compounds.

Hazardous or Poisonous Substance 131

A substance of concern because of its potentially hazardous or toxic effects. This would include most drugs of abuse, as well as agents that require special handling because of their toxicity. Most pharmaceutical agents, although potentially harmful, we exclude here and assign to the type Pharmacologic Substance. Examples include Paraquat, Crack Cocaine, Plant poison, Carcinogens, and Sodium Cyanide.

5. Concepts and Ideas CON

Conceptual Entity 77

A broad type for grouping abstract entities or concepts. The children of this type in the network are Idea or Concept, Finding, Organism Attribute, Intellectual Product, Language, Occupation or Discipline, Organization, Group Attribute, and Group.

Idea or Concept 78

An abstract concept, such as a social, religious, or philosophical concept. The children of this type are Temporal Concept, Qualitative Concept, Quantitative Concept, Functional Concept, and Spatial Concept. Examples include Civil Rights, Freedom, Ethics, Spiritualism, and Capitalism.

Temporal Concept 79

A concept that pertains to time or duration. Examples include Half-Life, Postoperative Period, Puerperium, Birth Intervals, and Postimplantation Phase.

Qualitative Concept 80

A concept that is an assessment of some quality, rather than a direct measurement. Examples include Clinical Competence, Quality of Health Care, Abuse of Health Services, and Consumer Satisfaction.

Quantitative Concept 81

A concept that involves the dimensions, quantity or capacity of something using some unit of measure, or which involves the quantitative comparison of entities. Examples include Metric System, Body Height, Age Distribution, and Secretory Rate.

Spatial Concept 82

A location, region, or space, generally having definite boundaries. The children of this type are Body Space or Junction, Body Location or Region, Molecular Sequence, and 'Geographic Area.

Regulation or Law 89

An intellectual product resulting from legislative or regulatory activity. Examples include Building Codes, Criminal Law, Health Planning Guidelines, and Security Measures.

Group Attribute 102

A conceptual entity that refers to the frequency or distribution of certain characteristics or phenomena in certain groups. Examples include Neonatal Mortality, Life Expectancy, Family Size, Population Characteristics, and Group Structure.

Functional Concept 169

A concept that is of interest because it pertains to the carrying out of a process or activity. This type has one child in the network, Body System. Examples include Solar System.

Intellectual Product 170

A conceptual entity resulting from human endeavor. Terms assigned to this type generally refer to information created by humans for some purpose. This type has one child in the network, ' Regulation or Law. Examples include Bayes Theorem, Information Systems, and Literature.

Language 171

The system of communication used by a particular nation or people. Examples include Afrikaans, Greek, Modern, Braille, and Welsh.

6. Diseases and Pathologic Processes DIS

Pathologic Function 46

A disordered process, activity, or state of the organism as a whole, of a body system or systems, or of multiple organs or tissues. Included here are normal responses to a negative stimulus as well as pathololologic conditions or states that are less specific than a disease. Pathologic functions frequently have systemic effects. The children of this type are Disease or Syndrome, Cell or Molecular Dysfunction, and Experimental Model of Disease. Examples include Shock, Infarction, Cerebral Anoxia, Inflammation, Anaphylaxis, and Acid-Base Imbalance.

Disease or Syndrome 47

A condition that alters or interferes with a normal process, state, or activity of an organism. It is usually characterized by the abnormal functioning of one or more of the host's systems, parts, or organs. Included here is a complex of symptoms descriptive of a disorder. This type has one child in the network, Mental or Behavioral Dysfunction. Examples include Diabetes Mellitus, Brain Neoplasms, Nephrotic Syndrome, Dumping Syndrome, and Malabsorption Syndromes.

Mental or Behavioral Dysfunction 48

A clinically significant dysfunction whose major manifestation is behavioral or psychological. These dysfunctions may have identified or presumed biological etiologies or manifestations. Examples include Memory Disorders, Agoraphobia, Hallucinations, Anxiety States, Neurotic, and Cyclothymic Disorder.

Experimental Model of Disease 50

A representation in a non-human organism of a human disease for the purpose of research into its mechanism or treatment. Examples include Avian Leukosis, Streptozotocin Diabetes, Ehrlich Ascites Tumor, and Melanoma, Experimental.

Finding 33

That which is discovered by direct observation or measurement of an organism attribute or condition, including the clinical history of the patient. The children of this type are Laboratory or Test Result, and Sign or Symptom. Examples include Occupational problem, Birth History, and Downward displacement of diaphragm.

Laboratory or Test Result 34

The outcome of a specific test to measure an attribute or to determine the presence, absence, or degree of a condition. Laboratory or test results are inherently quantitative and, thus, we do not assign the additional type Quantitative Concept. Examples include Apgar Score, Gastric acidity, Blood Volume, and Hypernatremia.

Sign or Symptom 184

An observable manifestation of a disease or condition based on clinical judgment, or a manifestation of a disease or condition that the patient experiences and reports as a subjective observation. Examples include Pallor, Body Weight Changes, Echolalia, Hyperventilation, Pain, Toothache, Nausea, and Cough. Formerly semantic types Signs (# 35) and Symptoms (# 36).

Injury or Poisoning 37

A traumatic wound, injury, or poisoning caused by an external agent or force. Examples include Frostbite, Mushroom Poisoning, Acid burn, Snake Bites, and Ergotism.

7. Geographic Areas GEO

Geographic Area 83

A geographic location, generally having definite boundaries. Examples include Canada, Baltimore, Far East, Arctic Regions, and Cities.

8. Groups GRP

Group 96

A conceptual entity referring to the classification of individuals according to certain shared characteristics. The children of this type are Professional or Occupational Group, Population Group, Family Group, Age Group, and Patient or Disabled Group.

Professional or Occupational Group 97

An individual or individuals classified according to their vocation. Examples include Zoologist, Physicians, Hospital Volunteers, Clergy, Military Personnel, and Demographers.

Population Group 98

An individual or individuals classified according to their sex, racial origin, religion, common place of living, financial or social status, or some other cultural or behavioral attribute. Examples include Asian Americans, Ethnic Groups, Homeless Persons, and Low-Income Population.

Family Group 99

An individual or individuals classified according to their family relationships or relative position in the family unit. Examples include Only Child, Single Parent, Surrogate Mothers, and Twins.

Age Group 100

An individual or individuals classified according to their age. Examples include Adult, Infant, Premature, Adolescents, and Octogenarian.

Patient or Disabled Group 101

An individual or individuals classified according to a disability, disease, condition, or treatment. Examples include Amputees, Child, Institutionalized, and Inpatients.

9. Molecular Biology MOL

Macromolecular Structure 27

A very large molecule whose structure contributes to the physiology of the cell. This type has one child in the network, Gene or Genome. Examples include Scleroproteins, Histone H5, and Collagen.

Gene or Genome 28

A specific sequence, or in the case of the genome the complete sequence, of nucleotides along a molecule of DNA or RNA (in the case of some viruses) which represent the functional units of heredity. Examples include Alleles, Genes, Structural, Genome, Human, and c-Ha-ras Genes.

Molecular Function 44

A physiologic function occurring at the molecular level. This type has one child in the network, Genetic Function. Examples include Electron Transport, Glycolysis, and Binding, Competitive.

Genetic Function 45

Functions of or related to the maintenance, translation, or expression of the genetic material. Examples include Amino Acid Activation, Early Gene Transcription, Gene Amplification, and RNA Splicing.

Cell or Molecular Dysfunction 49

A pathologic function inherent to cells, parts of cells, or molecules. Examples include Cellular necrosis, Wallerian Degeneration, Cell Transformation, Neoplastic, and DNA Damage.

Molecular Biology Research Technique 63

Any of the techniques used in the study of or the directed modification of the gene complement of a living organism. Examples include Genetic Engineering, Heterozygote Detection, Sequence Homology Determination, and Blotting, Northern.

Molecular Sequence 85

A broad type for grouping the collected sequences of amino acids, carbohydrates, and nucleotide sequences. Descriptions of these sequences are generally reported in the published literature and/or are deposited in and maintained by data banks such as GenBank, European Molecular Biology Laboratory (EMBL), National Biomedical Research Foundation (NBRF), or other sequence repositories. The children of this type are Nucleotide Sequence, Amino Acid Sequence, and Carbohydrate Sequence.

Nucleotide Sequence 86

The sequence of purines and pyrimidines in nucleic acids and polynucleotides. Included here are nucleotide-rich regions, conserved sequence, and DNA transforming region. Examples include AT Rich Region, Base Sequence, Direct Repeat, and Exons.

Amino Acid Sequence 87

The sequence of amino acids as arrayed in chains, sheets, etc., within the protein molecule. It is of fundamental importance in determining protein structure.

Carbohydrate Sequence 88

The sequence of carbohydrates within polysaccharides, glycoproteins, and glycolipids.

Nucleic Acid, Nucleoside, or Nucleotide 114

A complex compound of high molecular weight occurring in living cells. These are of two types, ribonucleic (RNA) and deoxyribo-nucleic (DNA) acids, both of which consist of nucleotides (nucleoside phosphates linked together by phosphate bridges). Examples include Adenosine, Dibutyryl Cyclic AMP, Deoxyadenosines, and Nicotinamide Mononucleotide.

Amino Acid, Peptide, or Protein 116

Amino acids and chains of amino acids connected by peptide linkages. Examples include Glycoproteins, Myoglobin, Alanine, Sulfatase, and Acetylcysteine.

Gene Product <deleted>

Formerly semantic type # 117.

10. Physical Objects OBJ

Entity 71

A physical or conceptual entity. The children of this type are Physical Object and Conceptual Entity.

Physical Object 72

An object perceptible to the sense of vision or touch. The children of this type in the network are Organism, Anatomical Structure, Manufactured Object, and Substance.

Manufactured Object 73

A physical object made by human beings. The children of this type in the network are Medical Device and Research Device. Examples include Cooking and Eating Utensils, Bookplates, Adhesive tape, and Car Seats.

Medical Device 74

A manufactured object used primarily in the diagnosis, treatment, or prevention of physiologic or anatomic disorders. Examples include Hip Prosthesis, Oxygenators, Syringes, and Obstetrical Forceps.

Research Device 75

A manufactured object used primarily in carrying out scientific research or experimentation. Examples include Questionnaires, Atmosphere Exposure Chambers, and Cell-Free System.

Substance 167

A material with definite or fairly definite chemical composition. The children of this type are Chemical, Body Substance, and Food. Examples include Charcoal, Foreign Bodies, Air, Fossils," and Electrons.

Food 168

Any substance containing nutrients, such as carbohydrates, proteins, and fats that a living organism can ingest and metabolize into energy and body tissue. Some foods are naturally occurring; others are either partially or entirely synthetic. Examples include Egg Yolk, Nuts, Beverages, and Margarine.

11. Occupations and Organizations OCC

Occupation or Discipline 90

A vocation, academic discipline, or field of study, or a subpart of an occupation or discipline. If the term refers to the individuals who have the vocation, then we assign the type Professional or Occupational Group. This type has one child in the network, Biomedical Occupation or Discipline. Examples include Anthropology, Ecology, Linguistics, Air Microbiology, and Craniology.

Biomedical Occupation or Discipline 91

A vocation, academic discipline, or field of study related to biomedicine. Examples include Dermatology, Emergency Nursing, Dentistry, Family Practice, and Cellular Neurobiology.

Organization 92

The result of uniting for a common purpose or function. The continued existence of an organization is not dependent on any of its members, its location, or particular facility. Components or subparts of organizations are also included here. The children of this type are Health Care Related Organization, Professional Society, and Self-help or Relief Organization.' Examples include Universities, United Nations, United States Environmental Protection Agency, European Economic Community, and Labor Unions.

Health Care Related Organization 93

An established organization which carries out specific functions related to health care delivery or research in the life sciences. Terms for health care related professional societies are assigned the type Professional Society. Examples include American Cancer Society Health Care Coalitions, Ambulatory Care Facilities, and Pan American Health Organization.

Professional Society 94

An organization uniting those who have a common vocation or who are involved with a common field of study. Examples include American Medical Association, Library Associations, and International Council of Nurses.

Self-help or Relief Organization 95

An organization whose purpose and function is to provide assistance to the needy or to offer support to those sharing similar problems. Examples include Alcoholics Anonymous, Red Cross, Charities, and Tuberculosis Societies.

12. Organism ORG

Organism 1

Generally, a living individual, including all plants and animals. The children of this type are Plant, Fungus, Virus, Rickettsia or Chlamydia, Bacterium, and Animal. Examples include Plankton, Homozygote, and Radiation Chimera.

Plant 2

An organism having cellulose cell walls, growing by synthesis of inorganic substances, generally distinguished by the presence of chlorophyll, and lacking the power of locomotion. Plant parts are included here as well. This type has one child in the network, Alga. Examples include Potatoes, Pollen, and Vegetables.

Alga 3

A chiefly aquatic plant that contains chlorophyll, but does not form embryos during development and lacks vascular tissue. Examples include Chlorella, Laminaria, Seaweed, and Anabaena.

Fungus 4

A eukaryotic organism characterized by the absence of chlorophyll and the presence of a rigid cell wall. Included here are both slime molds and true fungi such as yeasts, molds, mildews, and mushrooms. Examples include Blastomyces, Neurospora, Aspergillus clavatus, and Helminthosporium.

Virus 5

An organism consisting of a core of a single nucleic acid enclosed in a protective coat of protein. A virus may replicate only inside a host living cell. A virus exhibits some but not all of the usual characteristics of living things. Examples include Parvoviridae, Foot-and-Mouth Disease Virus, and Echovirus 6.

Rickettsia or Chlamydia 6

An organism intermediate in size and complexity between a virus and a bacterium, and which is parasitic within the cells of insects and ticks. Included here are all the chlamydias, also called PLT for psittacosis- lymphogranuloma venereum-trachoma. Examples include Anaplasma, Bartonella, and Chlamydia trachomatis.

Bacterium 7

A small, typically one-celled, prokaryotic micro-organism. Examples include Bacillus cereus, Acetobacter, Bordetella pertussis, and Cytophaga.

Animal 8

An organism with eukaryotic cells, and lacking stiff cell walls, plastids and photosynthetic pigments. The children of this type are Invertebrate and Vertebrate. Examples include Animals, Poisonous; Animals, Newborn; and Animals, Laboratory.

Invertebrate 9

An animal which has no spinal column. This type has no children in the network and is assigned to all invertebrate animals. Examples include Helminths, Octopus, Wasps, and Protozoa.

Vertebrate 10

An animal which has a spinal column. The children of this type are Amphibian, Bird, Fish, Reptile, and Mammal.

Amphibian 11

A cold-blooded, smooth-skinned vertebrate which characteristically hatches as an aquatic larva, breathing by gills. When mature, the amphibian breathes with lungs. Examples include Salamandra, Urodela, and Frog.

Bird 12

A vertebrate having a constant body temperature and characterized by the presence of feathers. Examples include Canaries, Pigeons, and Quail.

Fish 13

A cold-blooded aquatic vertebrate characterized by fins and breathing by gills. Included here are fishes having either a bony skeleton, such as a perch, or a cartilaginous skeleton, such as a shark, or those lacking a jaw, such as a lamprey or hagfish. Examples include Bass, Eels, and Carp.

Reptile 14

A cold-blooded vertebrate having an external covering of scales or horny plates. Reptiles breathe by means of lungs and are generally egg-laying. Examples include Lizards, Snakes, Turtles, and Iguanas.

Mammal 15

A vertebrate having a constant body temperature and characterized by the presence of hair, mammary glands, and sweat glands. This type has one child in the network, Human. Examples include Bears, Macaca, Hamsters, and Kangaroos.

Human 16

Modern man, the only remaining species of the Homo genus. If a term describes a human being from the point of view of occupational, family, social status, etc., then a type from the Group hierarchy is assigned instead. A small number of terms have been assigned this type, e.g., Hominidae, Man, and Homo sapiens.

13. Physiology PHY

Biologic Function 38

A state, activity, or process of the body or one of its systems or parts. If the term refers to a biologic function found only in non-humans, the Non-Human flag is assigned as well. The children of this type are Physiologic Function and Pathologic Function.

Physiologic Function 39

A normal process, activity, or state of the body. The children of this type in the network are Organism Function, Organ or Tissue Function, Cell Function, and Molecular Function.

Organism Function 40

A physiologic function of the organism as a whole, of multiple organ systems, or of multiple organs or tissues. This type has one child in the network, Mental Process. Examples include Growth, Sleep, Hibernation, and Homeostasis.

Mental Process 41

A physiologic function involving the mind or cognitive processing. Examples include Avoidance Learning, Pattern Recognition, Anger, and Cognition."

Organ or Tissue Function 42

A physiologic function of a particular organ, organ system, or tissue. Examples include Osteogenesis, Tooth Calcification, and Renal Circulation.

Cell Function 43

A physiologic function inherent to cells or cell components. Examples include Cell Division, Cell Cycle, Erythrocyte Aggregation, and Lymphocyte Transformation.

Organism Attribute 32

A property of the organism or its major parts. If the term refers to an attribute found only in non-humans, the Non-Human flag is assigned as well. Examples include Body Weight, Body Temperature, Ambidexterity, and Eye Color.

14. Procedures PRO

Laboratory Procedure 59

A procedure, method, or technique used to determine the composition, quantity, or concentration of a specimen, which is carried out in a clinical laboratory. Included here are procedures which measure the times and rates of reactions. Examples include Radioimmunoassay, Legionella titer, Blood Protein Electrophoresis, and Spectrophotometry.

Diagnostic Procedure 60

A procedure, method, or technique used to determine the nature or identity of a disease or disorder. This excludes procedures which are primarily carried out on specimens in a laboratory. Examples include Electrocardiography, Ultrasonography, Heart Auscultation, and Personality Assessment.

Therapeutic or Preventive Procedure 61

A procedure, method, or technique designed to prevent a disease or a disorder, or to improve physical function, or used in the process of treating a disease or injury. Examples include Cesarean Section, Counseling, Vaccine Therapy, and Cochlear Implant.

15. Unknown/Untyped UNK

Unknown/Untyped 999

A vocabulary concept where the semantic type is either unknown or by its recent addition to the vocabulary, remains untyped. Most untyped concepts acquire a semantic assignment by either further investigation or usage.

17. Appendix C: Integration Control Registrations Detailed

17.1 Lexicon as a Subscriber

321 MODIFY 'B' XREF OF 757.01

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private            ENTERED: DEC  1,1993
             STATUS: Expired            EXPIRES: APR  3,2007
           DURATION: Next Version       VERSION: LEXICON 1.0
               FILE: 757.01                ROOT:
        DESCRIPTION:   TYPE: File
   The FM team grants the request of the Clinical Lexicon package
   to modify the "B" index of file 757.01 as follows:

   S ^GMP(757.01,"B",$E($$UP^XLFSTR(X),1,63),DA)=""
   K ^GMP(757.01,"B",$E($$UP^XLFSTR(X),1,63),DA)

   It is further agreed that the following tools will not be used
   with this file: DIFROM, COMPARE/MERGE and TRANSFER.  These
   tools rely on an unmodified 'B' index to function properly.
   Using the modified 'B' index of file 757.01 along with any
   of the named tools may produce unexpected results.
```

345 Read ^DD(file)

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  2,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:   ROOT: DD(
        DESCRIPTION:   TYPE: File
         Read ^DD(FN), where FN is a file number, to
   determine the existence of a file prior to initiating
   a look-up (GMPTA4).

   Read ^DD(757*,FLD in indexing routines to obtain the
   location (node/piece) of data in Clinical Lexicon files
   757-757.3 prior to eXecuting Set/Kill logic (GMPTNDX2).
```

346 Read/Write Access to ^XT(8984.*

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  4,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.1                 ROOT: XT(8984.1,
        DESCRIPTION:   TYPE: File
   Read only access to ^XT(8984.* globals for $D checks in
   the Environment Check routine prior to installing the
   Clinical Lexicon (GMPTIENV).

   i.e. I '$D(^XT(8984.1)) W !,"Multi-Term Look-Up Utility not
   found" K DIFQ Q

   Read/Write access to ^XT(8984.* global in Post-Init
   routines to setup the Multi-Term Look-Up Utility for
   the Clinical Lexicon (GMPTIPST).

   i.e.,

    a.  Seeding the Local Look-Up file #8984.4 with the
        Clinical Lexicon Expression file #757.01, the
        "AWRD" index and the XTLK^GMPTPRNT display routine.

    b.  Seeding the Synonym file #8984.3 with Cancer as a
        sample synonym for Carcinoma

    c.  Seeding the Short Cut file #8984.2 with DM II as a
        sample short cut for Diabetes Mellitus, Non-Insulin
        Dependent
```

510 DISV

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Controlled Subscri  ENTERED: JUL 27,1989
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:   ROOT: DISV(
        DESCRIPTION:   TYPE: File
   Used to process 'space-bar return' on user input.
```

854 Read/Write Access to ^XT(8984.*

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  4,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.2                 ROOT: XT(8984.2,
        DESCRIPTION:   TYPE: File
          Read only access to ^XT(8984.2,"B" and the associated
   data node ^XT(8984.2,DA,0)

   If the user input is found in the "B" cross-reference, and
   it is a valid "Short Cut" for the Clinical Lexicon -
   ^XT(8984.2,DA,0)[GMP(757.01 - then the preprocessing of the
   input string is disabled and the Multi-Term Look-Up Utility
   (MTLU) is called directly (GMPTA2).

   Read only access to ^XT(8984.* globals for $D checks in
   the Environment Check routine prior to installing the
   Clinical Lexicon (GMPTIENV).

     i.e. I '$D(^XT(8984.1)) W !,"Multi-Term Look-Up Utility
     not found" K DIFQ Q

   Read/Write access to ^XT(8984.* global in Post-Init routines to
   setup the Multi-Term Look-Up Utility for the Clinical Lexicon
   (GMPTIPST).

     i.e.,

         Seeding the Local Look-Up file #8984.4 with the Clinical
         Lexicon Expression file #757.01, the "AWRD" index and the
         XTLK^GMPTPRNT display routine.

         Seeding the Synonym file #8984.3 with Cancer as a sample
         synonym for Carcinoma

         Seeding the Short Cut file #8984.2 with DM II as a
         sample short cut for Diabetes Mellitus, Non-Insulin
         Dependent
```

855 Read/Write Access to ^XT(8984.*

```
  CUSTODIAL PACKAGE: TOOLKIT
```

```
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  4,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.3                 ROOT: XT(8984.3,
        DESCRIPTION:   TYPE: File
   Read only access to ^XT(8984.* globals for $D checks in the
   Environment Check routine prior to installing the Clinical Lexicon
   (GMPTIENV).

i.e.

I '$D(^XT(8984.1)) W !,"Multi-Term Look-Up Utility not found" K DIFQ Q

Read/Write access to ^XT(8984.* global in Post-Init routines to
setup the Multi-Term Look-Up Utility for the Clinical Lexicon
(GMPTIPST).

i.e.,

  a.     Seeding the Local Look-Up file #8984.4 with the Clinical Lexicon
         Expression file #757.01, the "AWRD" index and the XTLK^GMPTPRNT
         display routine.

  b.     Seeding the Synonym file #8984.3 with Cancer as a sample synonym
         for Carcinoma

  c.     Seeding the Short Cut file #8984.2 with DM II as a sample short
         cut for Diabetes Mellitus, Non-Insulin Dependent
```

856 Read/Write Access to ^XT(8984.*

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  4,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.4                 ROOT: XT(8984.4,
        DESCRIPTION:   TYPE: File
          Read only access to ^XT(8984.* globals for $D checks in the
   Environment Check routine prior to installing the Clinical Lexicon
   (GMPTIENV).

   i.e.

   I '$D(^XT(8984.1)) W !,"Multi-Term Look-Up Utility not found" K DIFQ Q

   Read/Write access to ^XT(8984.* global in Post-Init routines to
   setup the Multi-Term Look-Up Utility for the Clinical Lexicon
   (GMPTIPST).

   i.e.,

   a.     Seeding the Local Look-Up file #8984.4 with the Clinical Lexicon
          Expression file #757.01, the "AWRD" index and the XTLK^GMPTPRNT
          display routine.
   b.     Seeding the Synonym file #8984.3 with Cancer as a sample synonym
          for Carcinoma

   c.     Seeding the Short Cut file #8984.2 with DM II as a sample short
          cut for Diabetes Mellitus, Non-Insulin Dependent
```

857 XTLK Namespace Option

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: FEB  4,1994
             STATUS: Retired             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:   ROOT:
        DESCRIPTION:   TYPE: Other
          Agreement is to add XTLK name-spaced Option XTLKUSER2 to the GMPT
   CLINICAL LEXICON MGT MENU so managers can add keywords, short-cuts and
   synonyms to the ^XT(8984.* files without leaving the Clinical Lexicon
   Manager menu.
```

872 File 101

```
  CUSTODIAL PACKAGE: KERNEL
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Controlled Subscri  ENTERED: APR 28,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 101                    ROOT: ORD(101,
        DESCRIPTION:   TYPE: File
   This file may be referenced by packages to maintain protocols within their
   namespace.  This file may also be pointed to.
```

888 MTLU setup 8984.1

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: MAY 16,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.1                 ROOT: DD(8984.1
        DESCRIPTION:   TYPE: File
   The Clinical Lexicon Utility needs to write to the DD of the Kernel
   Toolkit Multi-Term Look-up Utility (MTLU) during the Post-Init.

     ^DD(8984.1,.02,'V',D0,0)
       .01      FILE                 0;1      Both R/W w/Fileman
       .02      MESSAGE              0;2      Both R/W w/Fileman
       .03      ORDER                0;3      Both R/W w/Fileman
       .05      SHOULD ENTRIES BE SC 0;5      Both R/W w/Fileman
       .06      SHOULD USER BE ALLOW 0;6      Both R/W w/Fileman
       .04      PREFIX               0;4      Both R/W w/Fileman
```

889 MTLU setup 8984.2

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: MAY 16,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.2                 ROOT: DD(8984.2,
        DESCRIPTION:   TYPE: File
   The Clinical Lexicon Utility needs to write to the DD of Kernel Toolkit
   Multi-Term Look-up Utility (MTLU) during the Post-Init.

     ^DD(8984.2,.02,'V',D0,0)
       .01      FILE                 0;1      Both R/W w/Fileman
       .02      MESSAGE              0;2      Both R/W w/Fileman
       .03      ORDER                0;3      Both R/W w/Fileman
       .05      SHOULD ENTRIES BE SC 0;5      Both R/W w/Fileman
       .06      SHOULD USER BE ALLOW 0;6      Both R/W w/Fileman
       .04      PREFIX               0;4      Both R/W w/Fileman

     ROUTINE:
```

890 MTLU setup 8984.2

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Controlled Subscri  ENTERED: MAY 16,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.2                 ROOT: XT(8984.2,
        DESCRIPTION:   TYPE: File
   The Clinical Lexicon Utility needs to write to the Kernel Toolkit
   Multi-Term Look-up Utility’s (MTLU) files/DDs during the Post-Init.

     ^XT(8984.2,D0,0)
       .01      FREQUENTLY USED NARR 0;1      Both R/W w/Fileman
       .02      ENTRY                0;2      Both R/W w/Fileman
       .03      CODE                 0;3      Both R/W w/Fileman
```

891 MTLU setup 8984.3

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Controlled Subscri  ENTERED: MAY 16,1994
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.3                 ROOT: XT(8984.3,
        DESCRIPTION:   TYPE: File
   The Clinical Lexicon Utility needs to write to the Kernel Toolkit
   Multi-Term Look-up Utility's (MTLU) files/DDs during the Post-Init.

     ^XT(8984.3,D0,0)
       .01      TERM                 0;1      Both R/W w/Fileman
       .02      ASSOCIATED FILE      0;2      Both R/W w/Fileman
       .03      SYNONYM             1;0      Both R/W w/Fileman
    Multiple
      ^XT(8984.3,D0,1,D1,0)
       .01      SYNONYM             0;1      Both R/W w/Fileman
```

916   Read Access to ^DD(file,0,"GL"

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
  Read only access for ^DIC(FN,0,"GL"), where FN is a file number,
  to verify the value of DIC prior to initiating the lookup (GMPTA4).
              USAGE: Controlled Subscri  ENTERED: JUL 25,1994
             STATUS: Active              EXPIRES:
           DURATION:VERSION: Fileman 20
               FILE:   ROOT: DIC(
        DESCRIPTION:   TYPE: File
   The current packages subscribing to this IA are expected to migrate
   to use DID calls.  NO NEW FUTURE SUBSCRIBERS WILL BE ADDED.

      ^DIC(FILE_NO.,0,"GL")
       1        GLOBAL NAME    Direct Global Read
   A direct global read is performed on this node to determine the global
   root or a file.
```

1593   PATIENT CARE ENCOUNTER ^AUTNPOV

```
  CUSTODIAL PACKAGE: PCE PATIENT CARE ENCOUNTER
SUBSCRIBING PACKAGE: LEXICON UTILITY
   added 6/8/2011
              USAGE: Controlled Subscri  ENTERED: AUG  9,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 9999999.27             ROOT: AUTNPOV(
        DESCRIPTION:   TYPE: File
   The purpose of this IA is to allow access to the ^AUTNPOV( global for
   purposes of gathering information specific to a problem.

      ^AUTNPOV(D0,0)
       .01      NARRATIVE           0;1      Direct Global Read & W
```

1611   PROBLEM FILE ^AUPNPROB(

```
  CUSTODIAL PACKAGE: PROBLEM LIST
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: AUG 20,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 9000011                ROOT: AUPNPROB(
        DESCRIPTION:   TYPE: File
   This gives the Lexicon Utility the ability to update the ICD codes and the
   Lexicon pointer (Problem) in the Problem List application with each new
   release of the Lexicon.

      ^AUPNPROB(D0,0)
       .01      DIAGNOSIS           0;1      Both R/W w/Fileman
```

```
    Pointer to ICD Diagnosis file #80.
     ^AUPNPROB(D0,1)
       1.01     PROBLEM              1;1      Both R/W w/Fileman
    Pointer to Expressions file
    #757.01.
```

3779 Access to Domain file 4.2

```
  CUSTODIAL PACKAGE: MAILMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Controlled Subscri  ENTERED: OCT  7,2002
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 4.2                    ROOT: DIC(4.2
        DESCRIPTION:   TYPE: File
   Permission is granted to:

   1. Perform a FileMan lookup on file #4.2, DOMAIN, using the B and C cross
   references.

   2. Read the FLAGS field #1, using either direct global access or FileMan
   read.

     ^DIC(4.2,D0)
       1        FLAGS                0;2      Read w/Fileman
    Both direct global reads and
    read with FileMan are OK.
       .01      NAME                 0;1      Read w/Fileman
    It's OK to look up a domain
    name using a FileMan call and
    the B and C cross references.
```

3997 Access to File 9999999.27

```
  CUSTODIAL PACKAGE: PROBLEM LIST
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: MAR 12,2003
             STATUS: Withdrawn           EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 9999999.27             ROOT: AUTNPOV(
        DESCRIPTION:   TYPE: File
```

4012 Access to File 9.8

```
  CUSTODIAL PACKAGE: KERNEL
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: MAR 18,2003
             STATUS: Withdrawn           EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 9.8                    ROOT: DIC(9.8,
        DESCRIPTION:   TYPE: File
```

4184 KIDS Install Start/Complete Times

```
  CUSTODIAL PACKAGE: KERNEL
```

```
SUBSCRIBING PACKAGE: LEXICON UTILITY
         The Lexicon needs to use the Kernel's KIDS variable
         XPDA to retrieve the Installation Start and
         Completion times from the Install File #9.7 to
         include in a post-install status message from the
         install sites to the Lexicon developers.  This
         message is used to trouble-shoot various problems in
         the field.

              USAGE: Private             ENTERED: OCT 22,2004
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 9.7                    ROOT: XPD(9.7,
        DESCRIPTION:   TYPE: File
     ^XPD(9.7,XPDA,1)
       11       INSTALL START TIME   1;1      Read w/Fileman
    This is the time the install
    started
       17       INSTALL COMPLETE TIM 1;3      Read w/Fileman
    This is the time the install
    finished
        This file contains the installation information for a site from the
        Kernel Installation & Distribution System (KIDS).  This file is
        updated when a KIDS Distribution is installed at a site.
```

4475 Code Set DD Fixes

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY

              USAGE: Private             ENTERED: JAN 25,2006
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:   ROOT: DD(
        DESCRIPTION:   TYPE: File
   During the SQA of patch LEX*2.0*39, several anomalies were discovered with
   the Lexicon, CPT and ICD data files stemming from the Code Set Versioning
   and Code Text Descriptors projects.  There were several identical fields
   identified by the cross-references, and a field that points to a
   non-existing file.

   Rather than delete the DD and refresh it, potentially wiping out local
   mods, the Lexicon team is requesting a one-time permission to write and
   delete directly from the Data Dictionary.

   The code is as follows:


     1  File #757.28, Index "ACT" has duplicate Fields
          Field .01  ACTIVATION EFFECTIVE DATE
          Field  1   ACTIVATION STATUS

              S ^DD(757.02,1,1,2,0)="757.02^ACT1^MUMPS"
              S ^DD(757.28,.01,1,2,0)="757.02^ACT2^MUMPS"
              S ^DD(757.28,1,1,1,0)="757.02^ACT3^MUMPS"
              K ^DD(757.02,0,"IX","ACT",757.02,1)
```

```
         K ^DD(757.02,0,"IX","ACT",757.28,.01)
         K ^DD(757.02,0,"IX","ACT",757.28,1)
         S ^DD(757.02,0,"IX","ACT1",757.02,1)=""
         S ^DD(757.02,0,"IX","ACT2",757.28,.01)=""
         S ^DD(757.02,0,"IX","ACT3",757.28,1)=""

2  File #757.02, Index "APCODE" has duplicate Fields
     Field 1   EXPRESSION
     Field 4   PREFERENCE FLAG

         S ^DD(757.02,1,1,4,0)="757.02^APCODE1^MUMPS"
         S ^DD(757.02,4,1,1,0)="757.02^APCODE2^MUMPS"
         K ^DD(757.02,0,"IX","APCODE",757.02,1)
         K ^DD(757.02,0,"IX","APCODE",757.02,4)
         S ^DD(757.02,0,"IX","APCODE1",757.02,1)=""
         S ^DD(757.02,0,"IX","APCODE2",757.02,4)=""

3  File #81.02, Index "ACT" has duplicate Fields
     Field .01  EFFECTIVE DATE
     Field .02  STATUS

         S ^DD(81,.01,1,5,0)="81^ACT1^MUMPS"
         S ^DD(81.02,.01,1,2,0)="81^ACT2^MUMPS"
         S ^DD(81.02,.02,1,1,0)="81^ACT3^MUMPS"
         K ^DD(81,0,"IX","ACT",81,.01)
         K ^DD(81,0,"IX","ACT",81.02,.01)
         K ^DD(81,0,"IX","ACT",81.02,.02)
         S ^DD(81,0,"IX","ACT1",81,.01)=""
         S ^DD(81,0,"IX","ACT2",81.02,.01)=""
         S ^DD(81,0,"IX","ACT3",81.02,.02)=""

4  File #81.33, Index "ACT" has duplicate Fields
     Field .01   EFFECTIVE DATE
     Field .02   STATUS

         S ^DD(81.3,.01,1,3,0)="81.3^ACT1^MUMPS"
         S ^DD(81.33,.01,1,2,0)="81.3^ACT2^MUMPS"
         S ^DD(81.33,.02,1,1,0)="81.3^ACT3^MUMPS"
         K ^DD(81.3,0,"IX","ACT",81.3,.01)
         K ^DD(81.3,0,"IX","ACT",81.33,.01)
         K ^DD(81.3,0,"IX","ACT",81.33,.02)
         S ^DD(81.3,0,"IX","ACT1",81.3,.01)=""
         S ^DD(81.3,0,"IX","ACT2",81.33,.01)=""
         S ^DD(81.3,0,"IX","ACT3",81.33,.02)=""

5  File #80.066, Index "ACT" has duplicate Fields
     Field .01   EFFECTIVE DATE
     Field .02   STATUS

         S ^DD(80,.01,1,4,0)="80^ACT1^MUMPS"
         S ^DD(80.066,.01,1,2,0)="80^ACT2^MUMPS"
         S ^DD(80.066,.02,1,1,0)="80^ACT3^MUMPS"
         K ^DD(80,0,"IX","ACT",80,.01)
         K ^DD(80,0,"IX","ACT",80.066,.01)
         K ^DD(80,0,"IX","ACT",80.066,.02)
         S ^DD(80,0,"IX","ACT1",80,.01)=""
         S ^DD(80,0,"IX","ACT2",80.066,.01)=""
```

```
             S ^DD(80,0,"IX","ACT3",80.066,.02)=""
```

4485 ICD DIAGNOSIS file 80

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: JUL 28,2004
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 80ROOT: ICD9(
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4486 ICD OPERATION/PROCEDURE file 80.1

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: JUL 28,2004
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 80.1                   ROOT: ICD0(
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4487 DRG file 80.2

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: JUL 28,2004
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 80.2                   ROOT: ICD(
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4488 MAJOR DIAGNOSTIC CATEGORY file 80.3

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: JUL 28,2004
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 80.3                   ROOT: ICM(
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4489 CPT file 81

```
  CUSTODIAL PACKAGE: CPT/HCPCS CODES
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: JUL 28,2004
```

```
            STATUS: Active              EXPIRES:
          DURATION: Till Otherwise Agr  VERSION:
              FILE: 81ROOT: ICPT(
       DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4490 CPT CATEGORY file 81.1

```
  CUSTODIAL PACKAGE: CPT/HCPCS CODES
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private            ENTERED: JUL 28,2004
             STATUS: Active             EXPIRES:
           DURATION: Till Otherwise Agr VERSION:
               FILE: 81.1                  ROOT: DIC(81.1,
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4491 CPT COPYRIGHT file 81.2

```
  CUSTODIAL PACKAGE: CPT/HCPCS CODES
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private            ENTERED: JUL 28,2004
             STATUS: Active             EXPIRES:
           DURATION: Till Otherwise Agr VERSION:
               FILE: 81.2                  ROOT: DIC(81.2,
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4492 CPT MODIFIER file 81.3

```
  CUSTODIAL PACKAGE: CPT/HCPCS CODES
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private            ENTERED: JUL 28,2004
             STATUS: Active             EXPIRES:
           DURATION: Till Otherwise Agr VERSION:
               FILE: 81.3                  ROOT: DIC(81.3,
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

4494 MODIFY 'B' XREF OF 757.01

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private            ENTERED: APR  3,2007
             STATUS: Active             EXPIRES:
           DURATION: Till Otherwise Agr VERSION:
               FILE: 757.01                ROOT:
        DESCRIPTION:   TYPE: File
   The FM team grants the request of the Clinical Lexicon package to modify
   the "B" index of file 757.01 as follows:
```

```
   S ^LEX(757.01,"B",$E($$UP^XLFSTR(X),1,63),DA)=""
   K ^LEX(757.01,"B",$E($$UP^XLFSTR(X),1,63),DA)
```

It is further agreed that the following tools will not be used with this file: DIFROM, COMPARE/MERGE and TRANSFER. These tools rely on an unmodified 'B' index to function properly. Using the modified 'B' index of file 757.01 along with any of the named tools may produce unexpected results.

4797 MTLU Setup for Code Sets

```
  CUSTODIAL PACKAGE: TOOLKIT
SUBSCRIBING PACKAGE: LEXICON UTILITY
         This IA supersedes previous IA #346, #856 and 887,
         originally written to support the Clinical Lexicon
         Utility v 1.0 (in the GMPT namespace). The updated
         agreement will support Code Sets as implemented in
         the Lexicon Utility v 2.0 (in the LEX namespace). The
         Lexicon Utility is responsible for the ICD Code Sets
         and the CPT Code Sets in files 757.01, 80, 80.1, and
         81.
              USAGE: Controlled Subscri  ENTERED: SEP 21,2005
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 8984.4                 ROOT: XT(8984.4,
        DESCRIPTION:   TYPE: File
   The Lexicon Utility needs to write to the Kernel Toolkit Multi-Term
   Look-up Utility's (MTLU) files during a KIDS install/post-init.

     ^XT(8984.4,<file>,0)
       .01      NAME                0;1      Both R/W w/Fileman
       .03      INDEX               0;3      Both R/W w/Fileman
     ^XT(8984.4,<file>,1)
       .02      DISPLAY PROTOCOL    1;E1,20  Both R/W w/Fileman

     ROUTINE:
```

5038 Lexicon Read of ^DD(D0,0,'IX')

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
        Lexicon needs to be able to obtain the field number
        that contains a classic Fileman cross-reference by
        a direct global read of the Lexicon's Data
        Dictionary (DD) 0 node, 'IX' subscripts.

        ^DD(<file>,0,'IX',<file/sub-file>,<field>)

        The Lexicon has become so large that conventional
        Re-indexing by Kill/Set logic needs to be replaced
        with Index Repair logic, avoiding the killing of a
        cross-reference and allowing users to stay on the
        system without loss of access to the Lexicon
        package.

              USAGE: Private             ENTERED: NOV  6,2007
```

```
           STATUS: Active              EXPIRES:
         DURATION: Till Otherwise Agr  VERSION:
             FILE:   ROOT: DD(
      DESCRIPTION:   TYPE: File
   ^DD(D0,0,'IX')
      DD(D0,0,'IX') - Where D0 is the number of a Lexicon file, and the
      'IX' subscript contains a listing of Lexicon fields that are
      cross-referenced.
```

5747 ICD Data Extraction ^ICDEX

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
                        The LEXICON UTILITY has access to all APIs listed in
                        this ICR as if it were the Custodial Package.

                     ACCOUNTS RECEIVABLE
                        ACCOUNT RECEIVABLE (PRCA) package will use the
                        following APIs:

                          $$CODEC^ICDEX
                          $$CODECS^ICDEX

                     INTEGRATED BILLING
                        INTEGRATED BILLING (IB) will use the following APIs:

                          $$SYS^ICDEX
                          $$CODEABA^ICDEX
                          $$STATCHK^ICDEX
                          $$ICDDX^ICDEX
                          $$ICDOP^ICDEX
                          $$LS^ICDEX

                     FEE BASIS
                        FEE BASIS (FB) package will use the following APIs:

                          $$GETDRG^ICDEX
                          $$STATCHK^ICDEX
                          $$CODEC^ICDEX
                          $$CODEABA^ICDEX
                          $$CODEN^ICDEX
                          $$SD^ICDEX

                     PROSTHETICS
                        PROSTHETICS (RMPR) will use the following APIs:

                          $$SINFO^ICDEX
                          $$CSI^ICDEX
                          $$STATCHK^ICDEX
                          $$ICDDX^ICDEX
                          $$VLT^ICDEX
                          $$LS^ICDEX
                          $$CODEC^ICDEX

                     SCHEDULING
                        SCHEDULING (SD) will use the following APIs:
```

```
     $$IMP^ICDEX
     $$CSI^ICDEX
     $$VER^ICDEX
     $$SYS^ICDEX
     $$LS^ICDEX
     $$ICDDX^ICDEX
     $$VLTD^ICDEX

REGISTRATION
   REGISTRATION (DG) will use the following APIs:

     $$CSI^ICDEX
     $$CODEC^ICDEX
     $$CODEN^ICDEX
     $$CODEABA^ICDEX
     $$LS^ICDEX
     $$NOT^ICDEX
     $$REQ^ICDEX
     $$SYS^ICDEX
     $$VLT^ICDEX
     $$SINFO^ICDEX
     $$CS^ICDEX
     $$ICDDX^ICDEX
     $$VST^ICDEX

CLINICAL REMINDERS
   CLINICAL REMINDERS (PXRM) will use the following
   APIs:

     $$CODEN^ICDEX
     $$CODEABA^ICDEX
     $$ICDDX^ICDEX
     $$ICDOP^ICDEX
     $$NEXT^ICDEX
     $$PREV^ICDEX
     $$IMP^ICDEX
     $$ROOT^ICDEX
     $$HDR^ICDEX
     $$CODEC^ICDEX
     $$CSI^ICDEX
     $$SINFO^ICDEX

PHARMACY BENEFITS MANAGEMENT
   PHARMACY BENEFITS MANAGEMENT (PSU) will use the
   following APIs:

     $$CSI^ICDEX
     $$ICDDX^ICDEX
     $$ICDOP^ICDEX

CLINICAL CASE REGISTRIES
   CLINICAL CASE REGISTRIES (ROR) will use the following
   APIs:

     $$CSI^ICDEX
     $$VSEX^ICDEX
     $$UPDX^ICDEX
     $$CODEC^ICDEX
     $$CODEABA^ICDEX
     $$VSTD^ICDEX
     $$VLTD^ICDEX
     $$VSTP^ICDEX
     $$VLTP^ICDEX
     $$FILE^ICDEX
     $$VLT^ICDEX
     $$VST^ICDEX
     $$CODEN^ICDEX
     $$ICDDX^ICDEX
     $$ICDOP^ICDEX
     $$SNAM^ICDEX
     $$OBA^ICDEX
CLINICAL PROCEDURES
   CLINICAL PROCEDURES (MD) will use the following APIs:

     $$ICDDX^ICDEX
     $$CSI^ICDEX
     $$IMP^ICDEX
     $$SINFO^ICDEX

SPINAL CORD DYSFUNCTION
   SPINAL CORD DYSFUNCTION (SPN) package will use the
   following APIs:

     $$OBA^ICDEX
     $$CODEBA^ICDEX
     $$CSI^ICDEX
     $$CODEABA^ICDEX
     $$VLT^ICDEX
     $$VST^ICDEX

HOSPITAL BASED HOME CARE
   HOSPITAL-BASED HOME CARE (HBH) will use the following
   APIs:

     $$SYS^ICDEX
     $$CODEC^ICDEX
     $$VSTD^ICDEX
     $$SAI^ICDEX
     $$CSI^ICDEX

EVENT CAPTURE
   EVENT CAPTURE (EC) package will use the following
   APIs:

     $$SINFO^ICDEX
     $$ICDDX^ICDEX
     $$CODEN^ICDEX

AUTOMATED INFO COLLECTION SYS
   AUTOMATED INFO COLLECTION SYS (IBD) package will use
   the following APIs:

     $$SINFO^ICDEX
     $$STATCHK^IDEX
LAB SERVICE
   LAB SERVICES (LR) will use the following APIs:

     $$CODEC^ICDEX
     $$ICDDX^ICDEX
     $$ICDOP^ICDEX
     $$IMP^ICDEX
     $$SINFO^ICDEX
     $$CSI^ICDEX
     $$SD^ICDEX
     $$SNAM^ICDEX
     $$CODEN^ICDEX

QUASAR
   QUASAR (ACKQ) will use the following APIs:

     $$CODEC^ICDEX
     $$CSI^ICDEX
     $$CODEN^ICDEX

EMERGENCY DEPARTMENT
   EMERGENCY DEPARTMENT (EDP) package will use the
   following APIs:

     $$ICDDX^ICDEX
     $$ICDOP^ICDEX
     $$CODEC^ICDEX

PROBLEM LIST
   PROBLEM LIST (GMPL) will use the following APIs:

     $$CODEC^ICDEX
     $$CSI^ICDEX
     $$SAB^ICDEX

PCE PATIENT CARE ENCOUNTER
   PATIENT CARE ENCOUNTER - PCE (PX) will use the
   following APIs:

     $$CODEC^ICDEX
     $$CODEN^ICDEX
     $$CSI^ICDEX
     $$SINFO^ICDEX
     $$LD^ICDEX
     $$IE^ICDEX
     $$ICDDX^ICDEX
     $$CODEABA^ICDEX

MENTAL HEALTH
   MENTAL HEALTH (YS) will use the following APIs:

     $$SINFO^ICDEX

SURGERY
   SURGERY (SR) package will use the following APIs:
     $$CODEN^ICDEX
     $$LS^ICDEX
     $$SYS^ICDEX
     $$VST^ICDEX
     $$CODEABA^ICDEX
     $$OBA^ICDEX
     $$CSI^ICDEX
     $$CODEC^ICDEX

ORDER ENTRY/RESULTS REPORTING
   ORDER ENTRY/RESULTS REPORTING (OR) will use the
   following APIs:

     $$CODECS^ICDEX
     $$CSI^ICDEX
     $$SAB^ICDEX
     $$VLTD^ICDEX
     $$CODEBA^ICDEX
TEXT INTEGRATION UTILITIES
   TEXT INTEGRATION UTILITIES (TIU) will use the
   following APIs:

     $$CODECS^ICDEX

VBECS
   BLOOD BANK (VBEC) will use the following APIs:

     $$ICDDX^ICDEX
     $$ICDOP^ICDEX

VA POINT OF SERVICE (KIOSKS)
   VA POINT OF SERVICE (KIOSKS) (VPS) will use the
   following APIs:

     $$SAB^ICDEX

HEALTH SUMMARY
   HEALTH SUMMARY (GMTS) will use the following APIs:

      $$CSI^ICDEX
      $$CODEC^ICDEX
      $$SNAM^ICDEX
      $$VST^ICDEX

VIRTUAL PATIENT RECORD
   VIRTUAL PATIENT RECORD (VPR) will use the following
   APIs:

       $$ICDDX^ICDEX
       $$CODEC^ICDEX
       $$VSTD^ICDEX
       $$VLTD^ICDEX
       $$CSI^ICDEX
       $$SAB^ICDEX

ENTERPRISE HEALTH MGMT PLATFORM
   Enterprise Health Mgmt Platform (HMP) will be using
```

```
                     the following API:

                       $$ICDDX^ICDEX

                  CONSULT/REQUEST TRACKING
                     GMRC will use the following API:

                     $$CODECS^ICDEX

                  FEE BASIS CLAIMS SYSTEM
                     FEE BASIS CLAIMS SYSTEM (FBCS) will use the following
                     APIs:

                       $$LKTX^ICDEX
                       $$SYS^ICDEX
                       $$ICDDX^ICEDX
                       $$CODEC^ICDEX
                       $$LD^ICDEX
                       $$IMP^ICDEX
                       $$ICDOP^ICDEX
                       $$CODEABA^ICDEX

           USAGE: Controlled Subscri  ENTERED: NOV  6,2011
          STATUS: Active              EXPIRES:
        DURATION: Till Otherwise Agr  VERSION:
     DESCRIPTION:                        TYPE: Routine
Application Programmer Interfaces (APIs) in this routine were developed to
remove the need for direct global access to either the DIAGNOSIS file 80
or OPERATIONS/PROCEDURE file 80.1.

These entry points are meant to replace the following active/retired ICRs:

     48  Private       YS File 80.2        Weight (2)
    280  Private       HBH File 80         Code (.01)
    365  Private       QAM File 80         Code (.01)
    368  Private       IB File 80          Retired Nov 15, 2008
    369  Private       IB File 80.1        Retired Nov 15, 2008
    370  Private       IB/DSS 80.2         DRG Name (.01)
    582  Private       IMR File 80         Code (.01)
    647  Private       IB File 80          Retired Nov 15, 2008
   1161  Private       VAM File 80         Retired Nov 15, 2008
   1275  Private       GMTS File 80        Retired Nov 15, 2008
   1276  Private       GMTS File 80.1      Retired Nov 15, 2008
   1294  Subscription  PCE/TIU/OR File 80  Retired Nov 15, 2008
   1487  Private       ACKQ File 80        Retired Nov 15, 2008
   1586  Subscription  AICS/PCE File 80.3  MDC Name (.01)
   2435  Private       PXRM File 80 Hdr    ^ICD9(0)
   2436  Private       PXRM File 80.1 Hdr  ^ICD0(0)
   3990  Supported     Routine ICDCODE     To be retired Apr 2016
   3991  Supported     Routine ICDAPIU     To be retired Apr 2016
   4052  Supported     Routine ICDGTDRG
   5028  Subscription  GMPL File 80
   5388  Supported     File 80             Code (.01), AB/BA/D/AST/ACT
                                           To be retired Apr 2016
   5404  Supported     File 80.1           Code (.01), BA/ACT
                                           To be retired Apr 2016
   5699  Supported     Routine ICDXCODE    To be retired Apr 2016
   5757  Supported     Routine ICDSAPI     To be retired Apr 2016
  10082  Supported     File 80             Retired Nov 15, 2008
  10083  Supported     File 80.1           Retired Nov 15, 2008



  ROUTINE: ICDEX
COMPONENT:  HELP
            This is an interactive help entry point for the input and
            output variables for the APIs contained in the routine ICDEX.

COMPONENT:  $$ICDDX(CODE,CDT,SYS,FMT,LOC)
            This entry point extracts data for an ICD-9 or ICD-10 code in
            the DIAGNOSIS file 80.

            This entry point is intended to replace the ICD-9 Legacy API
            $$ICDDX^ICDCODE (ICR 3990) and $$ICDDATA^ICDXCODE (ICR 5699),
            providing a single point of entry for ICD diagnostic data.

VARIABLES:  Input     CODE
                        This is an ICD diagnosis code in either the
                        external or internal format.  If the internal
                        format is used, then the input variable FMT must
                        be set to "I" (Required).


VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the code and text that
                        was appropriate for the date passed in this input
                        parameter. (Optional, if not supplied, TODAY will
                        be used)

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  The following coding systems are
                        found in file 80:

                          1 = ICD-9 Diagnosis
                         30 = ICD-10 Diagnosis

                        (Optional, but highly encouraged)

VARIABLES:  Input     FMT
                        This variable tells the API if the CODE is in
                        External or Internal format.

                          "E" = External (default)
                          "I" = Internal Entry Number

                        (Conditional, required if CODE is in internal
                        format)

VARIABLES:  Output    $$ICDDX
                        This is a 20 piece string delimited by "^"

                           1  IEN of code in ^ICD9(
                           2  ICD Dx Code                  (#.01)
                           3  Identifier                   (#1.2)
                           4  Versioned Dx                 (67 multiple)
                           5  Unacceptable as Principal Dx (#1.3)
                           6  Major Dx Cat                 (72 multiple)
                           7  MDC13                        (#1.4)
                           8  Compl/Comorb                 (103 multiple)
                           9  ICD Expanded                 (#1.7)
                          10  Status                       (66 multiple)
                          11  Sex                          (10 multiple)
                          12  Inactive Date                (66 multiple)
                          13  MDC24                        (#1.5)
                          14  MDC25                        (#1.6)
                          15  Age Low                      (11 multiple)
                          16  Age High                     (12 multiple)
                          17  Activation Date              (66 multiple)
                          18  Message
                          19  Complication/Comorbidity     (103 multiple)
                          20  Coding System                (#1.1)
                          21  Primary CC Flag              (103 multiple)
                          22  PDX Exclusion Code           (#1.11)
                         or

                          -1^Error Description

VARIABLES:  Input     LOC
                        This is a boolean flag used to indicate if the API
                        is to use local VA codes.  It only applies to
                        ICD-9 for backwards compatibility.

                          1 = Use local VA codes
                          0 = Do not use local VA codes (default)

COMPONENT:  $$ICDOP(CODE,CDT,SYS,FMT,LOC)
            This entry point extracts data for an ICD-9 or ICD-10 code in
            the OPERATIONS/PROCEDURE file 80.1

            This entry point is intended to replace the ICD-9 Legacy API
            $$ICDOP^ICDCODE (ICR 3990) and $$ICDDATA^ICDXCODE (ICR 5699),
            providing a single point of entry for ICD procedural data.

VARIABLES:  Input     CODE
                        This is an ICD operation/procedure code in either
                        the external or internal format.  If the internal
                        format is used, then the input variable FMT must
                        be set to "I" (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the code and text that
                        was appropriate for the date passed in CDT.
                        (Optional, if not supplied, TODAY will be used)

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  The following coding systems are
                        found in file 80.1:
                          2 = ICD-9 Procedures
                         31 = ICD-10 Procedures

                        (Optional, but highly encouraged)

VARIABLES:  Input     FMT
                        This variable tells the API if the CODE is in
                        External or Internal format.

                          "E" = External (default)
                          "I" = Internal Entry Number

                        (Conditional, required if CODE is in internal
                        format)

VARIABLES:  Output    $$ICDOP
                        This is a 15 piece string delimited by "^"

                           1   IEN of code in ^ICD0(
                           2   ICD procedure code           (#.01)
                           3   Identifier                   (#1.2)
                           4   MDC24                        (#1.5)
                           5   Versioned Oper/Proc          (67 multiple)
                           6   <null>
                           7   <null>
                           8   <null>
                           9   ICD Expanded                 (#1.7)
                          10   Status                       (66 multiple)
                          11   Use with Sex                 (10 multiple)
                          12   Inactive Date                (66 multiple)
                          13   Activation Date              (66 multiple)
                          14   Message
                          15   Coding System                (#1.1)

                         or

                          -1^Error Description

VARIABLES:  Input     LOC
                        This is a boolean flag used to indicate if the API
                        is to use local VA codes.  It only applies to
                        ICD-9 for backwards compatibility.

                          1 = Use local VA codes
                          0 = Do not use local VA codes (default)

COMPONENT:  $$ICDD(CODE,.ARY,CDT,SYS,LEN)
            This API returns the long description of either an ICD-9 or
            ICD-10 code.

            This entry point is intended to replace the ICD-9 Legacy API
            $$ICDD^ICDCODE (ICR 3990) and $$ICDDESC^ICDXCODE (ICR 5699),
            providing a single point of entry for ICD diagnosis/procedure
            descriptions.

VARIABLES:  Input     CODE
```

```
                     This is an ICD-9 or ICD-10 code in external format
                     only  (Required).

VARIABLES:  Input     .ARY
                     This is the name of a local array, passed by
                     reference that will contain the output of this
                     API.  (Required)

VARIABLES:  Input     CDT
                     This is the Code Set Versioning date (Fileman
                     format) used to identify the text that was
                     appropriate for the date passed in this input
                     parameter. (Optional, if not supplied, TODAY will
                     be used)

VARIABLES:  Input     SYS
                     This is an ICD coding system identifier (taken
                     from file 80.4).  The following coding systems are
                     found in files 80 and 80.1:

                       1 = ICD-9 Diagnosis file 80
                       2 = ICD-9 Procedure file 80.1
                      30 = ICD-10 Diagnosis file 80
                      31 = ICD-10 Procedure file 80.1

                     (Optional, but highly encouraged)

VARIABLES:  Input     LEN
                     This is the text string length of the description
                     placed in array .ARY.  (Optional, if passed it
                     must be greater than 27 based on the longest word
                     found in a diagnosis or procedure description and
                     not greater than 245.  If not passed it defaults
                     to 245 characters based in the input
                     transformation)

VARIABLES:  Output    $$ICDD
                     This is the number of lines in the output array
                     .ARY or if an error occurs, -1^Error Message

VARIABLES:  Output    ARY
                     This is a local array, passed by reference,
                     containing the long description of an ICD code
                     with string lengths defined by LEN when passed or
                     245 characters.  If there is a warning message
                     about text accuracy (ICD-9 only) it will be
                     appended to the end of the message preceded by a
                     blank line.

                       ARY(1) - Description (length of LEN)
                       ARY(n) - Description (continued if necessary)

                       If there is a warning message (ICD-9 only):

                       ARY(n+1) - blank
                       ARY(n+2) - message: CODE TEXT MAY BE INACCURATE
```

```
COMPONENT:  $$CODEN(CODE,FILE)
            This API returns the Internal Entry Number (IEN) of a ICD
            code.

            This entry point is intended to replace the ICD-9 Legacy API
            $$CODEN^ICDCODE (ICR 3990). It is also intended to replace the
            need for direct global access of the 'BA' cross-reference in
            ICRs 5388 and 5404.

VARIABLES:  Input     CODE
                        This is an ICD-9 or ICD-10 code in external format
                        only  (Required).

VARIABLES:  Input     FILE
                        This is the file number where the CODE is stored,
                        either 80 or 80.1 (Required)

VARIABLES:  Output    $$CODEN
                        This is the Internal Entry Number (IEN) of CODE in
                        file FILE appended by a tilde "~" and the global
                        root FILE:

                           IEN~^ROOT

                        or -1^Error Message on error

COMPONENT:  $$CODEC(FILE,IEN)
            This entry point returns the ICD-9 or ICD-10 code from a
            specified ICD file and Internal Entry Number (IEN).

            This entry point is intended to replace the ICD-9 Legacy API
            $$CODEC^ICDCODE (ICR 3990).  It is also intended to replace
            the need for direct global access in ICRs 280, 365, 582, 5388,
            and 5404.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        code (Required)

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is the internal entry number in FILE were the
                        code to be retrieved is stored (Required)

VARIABLES:  Output    $$CODEC
                        This is either the ICD code stored at the Internal
                        Entry Number IEN in the file identified by the
                        FILE input parameter, or upon error:

                            -1 ^ Error Message

COMPONENT:  $$CODEBA(CODE,ROOT)
            This entry point returns the internal entry number (IEN) of a
            code found in the 'BA' cross-reference in the file specified.
```

```
             This entry point is provided in lieu of ICD-9 Legacy entry
             point $$CODEN^ICDCODE (ICR 3990) which will crash with a
             <MAXNUMBER> error if the code passed has the letter 'E' in the
             middle of the code (example, ICD-10 procedure code 041E499
             would be interpreted as scientific notation).  $$CODEBA^ICDEX
             is much safer.

             If you already know the coding system, please use
             $$CODEABA^ICDEX instead.

             This entry point replaces the need for direct global read
             access of the 'BA' cross-reference allowed by ICRs 5388 and
             5404.

VARIABLES:   Input     CODE
                         This is either an ICD Diagnosis code or ICD
                         Procedure code (Required)

VARIABLES:   Input     ROOT
                         This is the global root (or file number) where the
                         code is stored (Required)

VARIABLES:   Output    $$CODEBA
                         This is the internal entry number (IEN) in the
                         specified file where the code is stored or -1 if
                         not found.

COMPONENT:   $$CODEABA(CODE,ROOT,SYS)
             This entry point returns the internal entry number (IEN) of a
             code found in the system specific 'ABA' cross-reference in the
             file specified.

             This entry point is provided in lieu of ICD-9 Legacy entry
             point $$CODEN^ICDCODE (ICR 3990) and new entry point
             $$CODEBA^ICDEX.

             Entry point Comparison:

                 $$CODEN^ICDCODE will crash if the code
                 has the letter 'E' in the middle of the
                 code.  Do not use it.

                 $$CODEBA^ICDEX is safer but it will fail to
                 return the correct IEN if ICD-9 and ICD-10
                 ever have a similar code.

                 $$CODEABA^ICDEX will neither crash or fail
                 to return the correct IEN.

VARIABLES:   Input     CODE
                         This is either an ICD Diagnosis code or ICD
                         Procedure code (Required)

VARIABLES:   Input     ROOT
                         This is the global root (or file number) where the
                         code is stored (Optional if SYS is supplied)
```

```
VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  The following coding systems are
                        found in files 80 and 80.1:

                           1 = ICD-9 Diagnosis file 80
                           2 = ICD-9 Procedure file 80.1
                          30 = ICD-10 Diagnosis file 80
                          31 = ICD-10 Procedure file 80.1

                        This API will look for the code on one of the
                        system specific cross-references:

                          ^ICD9("ABA",1,CODE,IEN)    ICD-9 Diagnosis
                          ^ICD9("ABA",30,CODE,IEN)   ICD-10 Diagnosis
                          ^ICD0("ABA",2,CODE,IEN)    ICD-9 Procedure
                          ^ICD0("ABA",31,CODE,IEN)   ICD-10 Procedure

                        If not supplied, the API will attempt to determine
                        the system based on code and file.

                        (Optional, but highly encouraged)

VARIABLES:  Output    $$CODEABA
                        This is the internal entry number (IEN) in the
                        specified file where the code is stored or -1 if
                        not found.

COMPONENT:  $$CODEFI(CODE)
            This entry point tries to resolve which file has an ICD code
            on file.

VARIABLES:  Input     CODE
                        This is either an ICD Diagnosis code or ICD
                        Procedure code (Required)

VARIABLES:  Output    $$CODEFI
                        This is the ICD file number where the specified
                        code was found:

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

                        or NULL if not found or could not resolve to a
                        single file.

COMPONENT:  $$CODECS(CODE,FILE,CDT)
            This entry point tries to resolve the Coding System based on a
            code, a file and a date.

VARIABLES:  Input     CODE
                        This is either an ICD Diagnosis code or ICD
                        Procedure code (Required)

VARIABLES:  Input     FILE
                        This is the ICD file number used to resolve the
                        coding system:
                           80   = ICD Diagnosis file
                           80.1 = ICD Operation/Procedure file

                         (Optional, but encouraged)  If not supplied, an
                         attempt to resolve the input variable FILE will be
                         made using the entry point $$CODEFI(CODE).

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to resolve the coding system.

                        This date is ONLY used if a code is found in both
                        ICD-9 and ICD-10 systems.  If that ever happens,
                        the date passed will determine the coding system.
                        If the date passed is before the ICD-10
                        implementation date it will be considered an ICD-9
                        code and if it is on or after the ICD-10
                        implementation date then it will be considered
                        ICD-10.

VARIABLES:  Output    $$CODECS
                        This is a 2 piece "^" delimited string containing:

                           1   Coding System (pointer to file 80.4)
                           2   Coding Nomenclature (commonly used name)

                        Example output values:

                           1^ICD-9-CM
                          30^ICD-10-CM
                           2^ICD-9 Proc
                          31^ICD-10-PCS

                        NULL if the API cannot resolve the coding system
                        based on code, file and date.

COMPONENT:  $$CSI(FILE,IEN)
            This entry point returns the Coding System for an Internal
            Entry Number (IEN).

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        coding system (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required).

VARIABLES:  Output    $$CSI
                        This is a pointer to the ICD CODING SYSTEMS file
                        #80.4

COMPONENT:  $$VMDC(IEN,CDT,FMT)
```

This entry point retrieves the versioned Major Diagnostic Category (MDC) for a diagnostic code in the DIAGNOSIS file 80.

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the DIAGNOSIS file 80 (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to identify the Major Diagnostic Category that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Input FMT
This is a flag used to determine the output format. Acceptable values are 0 and 1 (Optional, default value is 0).

```
FMT = 0    Major Diagnostic Category (MDC)
FMT = 1    MDC^Effective Date
```

VARIABLES: Output $$VMDC
This is the Major Diagnostic Category (MDC) that was appropriate for the date passed and the diagnosis code identified by input parameter IEN. The output may also have a second "^" delimited piece containing the MDC Effective Date if the input parameter FMT is set to 1.

COMPONENT: $$VAGEL(IEN,CDT,FMT)
This entry point retrieves the versioned Age Low value for a diagnostic code in the DIAGNOSIS file 80. Age Low is the minimum age value for an age range for which the diagnostic code can be applied.

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the DIAGNOSIS file 80 (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to identify the Age Low value that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Input FMT
This is a flag used to determine the output format. Acceptable values are 0 and 1 (Optional, default value is 0).

```
FMT = 0    Age Low
FMT = 1    Age Low^Effective Date
```

VARIABLES: Output $$VAGEL
This is the Age Low that was appropriate for the date passed and the diagnosis code identified by the input parameter IEN. The output may also have

a second "^" delimited piece containing the Age Low Effective Date if the input parameter FMT is set to 1. Null if Age Low not found for date.

COMPONENT: $$VAGEH(IEN,CDT,FMT)
This entry point retrieves the versioned Age High value for a diagnostic code in the DIAGNOSIS file 80. Age High is the maximum age value for an age range for which the diagnostic code can be applied.

VARIABLES: Input   IEN
This is an Internal Entry Number (IEN) in the DIAGNOSIS file 80 (Required)

VARIABLES: Input   CDT
This is the Code Set Versioning date (Fileman format) used to identify the Age High value that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Input   FMT
This is a flag used to determine the output format. Acceptable values are 0 and 1 (Optional, default value is 0).

FMT = 0   Age High
FMT = 1   Age High^Effective Date

VARIABLES: Output $$VAGEH
This is the Age High that was appropriate for the date passed and the diagnosis code identified by the input parameter IEN. The output may also have a second "^" delimited piece containing the Age High Effective Date if the input parameter FMT is set to 1. Null if Age High is not found for date.

COMPONENT: $$VCC(IEN,CDT,FMT)
This entry point retrieves the versioned Complication Comorbidity (CC) designation for a diagnostic code in the DIAGNOSIS file 80. A diagnostic code can be designated as:

Non-Complication Comorbidity (Non-CC)
Complication Comorbidity (CC)
Major Complication Comorbidity (MCC)

VARIABLES: Input   IEN
This is an Internal Entry Number (IEN) in the DIAGNOSIS file 80 (Required)

VARIABLES: Input   CDT
This is the Code Set Versioning date (Fileman format) used to identify the CC designation value that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Input   FMT
This is a flag used to determine the output

```
                        format. Acceptable values are 0 and 1 (Optional,
                        default value is 0).

                            FMT = 0    CC designation
                            FMT = 1    CC designation^Effective Date

VARIABLES:  Output    $$VCC
                        This is the CC designation that was appropriate
                        for the date passed and the diagnosis code
                        identified by the input parameter IEN.  The output
                        may also have a second "^" delimited piece
                        containing the CC designation Effective Date if
                        the input parameter FMT is set to 1.

                          0 = Non-Complication Comorbidity (Non-CC)
                          1 = Complication Comorbidity (CC)
                          2 = Major Complication Comorbidity (MCC)

                        Null if not found for date

COMPONENT:  $$VSEX(FILE,IEN,CDT,FMT)
            This entry point retrieves the versioned sex designation for a
            diagnostic or procedure code in either the ICD DIAGNOSIS file
            80 or the ICD OPERATION/PROCEDURE file 80.1. If a sex
            designation exist then the diagnosis or procedure should be
            applied only to that sex.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        sex designation:

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in either
                        the DIAGNOSIS file 80 or OPERATION/PROCEDURE file
                        80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the sex designation value
                        that was appropriate for the date passed
                        (Optional, if not passed TODAY is used).

VARIABLES:  Input     FMT
                        This is a flag used to determine the output
                        format. Acceptable values are 0 and 1 (Optional,
                        default value is 0).

                            FMT = 0    Sex designation
                            FMT = 1    Sex designation^Effective Date

VARIABLES:  Output    $$VSEX
                        This is the sex designation that was appropriate
                        for the date passed and the code identified by the
                        input parameter IEN.  The output may also have a
                        second "^" delimited piece containing the sex
                        designation Effective Date if the input parameter
                        FMT is set to 1.

                          M = Male
                          F = Female
                          Null if sex is N/A or not found for date

COMPONENT:  $$SAI(FILE,IEN,CDT)
            This entry point retrieves the Status, Activation date and
            Inactivation date for a diagnosis or procedure on a specified
            date.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        status and effective dates:

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in either
                        the DIAGNOSIS file 80 or OPERATION/PROCEDURE file
                        80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to retrieve the status and effective
                        dates that were appropriate for the date passed
                        (Optional, if not passed TODAY is used).

VARIABLES:  Output    $$SAI
                        This is a 6 piece "^" delimited string

                           1  Status
                           2  Activation Date
                           3  Inactivation Date
                           4  IEN
                           5  Code
                           6  Short Text

                              If the status is active, the short
                              text will be the most recent.

                              If the status is inactive, the short
                              text will be the text in use on the
                              date it was inactivated.

                              Null if no status for date.

COMPONENT:  $$VST(FILE,IEN,CDT)
            This entry point retrieves the Versioned Short Text for an
            diagnosis or procedure on a specified date.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        Versioned Short Text:
                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in either
                        the DIAGNOSIS file 80 or OPERATION/PROCEDURE file
                        80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to retrieve the Versioned Short Text
                        that was appropriate for the date passed
                        (Optional, if not passed TODAY is used).

VARIABLES:  Output    $$VST
                        This is the Versioned Short Text from either file
                        80 (DIAGNOSIS) or 80.1 (OPERATION/PROCEDURE) that
                        was appropriate for the date passed and the code
                        identified by the input parameter IEN.  Null if
                        not found.

COMPONENT:  $$VLT(FILE,IEN,CDT)
            This entry point retrieves the Versioned Long Text
            (description) for a diagnosis or procedure on a specified
            date.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        Versioned Long Text (description):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in either
                        the DIAGNOSIS file 80 or OPERATION/PROCEDURE file
                        80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to retrieve the Versioned Long Text
                        (description) that was appropriate for the date
                        passed (Optional, if not passed TODAY is used).

VARIABLES:  Output    $$VLT
                        This is the Versioned Long Text (description) from
                        either file 80 or 80.1 that was appropriate for
                        the date passed and the code identified by the
                        input parameter IEN.  Null if not found.

COMPONENT:  $$VSTD(IEN,CDT)
            This entry point retrieves the Versioned Short Text for a
            diagnosis on a specified date.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
```

DIAGNOSIS file 80 (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to retrieve the Versioned Short Text that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Output $$VSTD
This is the Versioned Short Text from file 80 that was appropriate for the date passed and the code identified by the input parameter IEN. Null if not found.

COMPONENT: $$VSTP(IEN,CDT)
This entry point retrieves the Versioned Short Text for a procedure on a specified date.

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the OPERATION/PROCEDURE file 80.1 (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to retrieve the Versioned Short Text that was appropriate for the date passed (Optional, if not passed TODAY is used).

VARIABLES: Output $$VSTP
This is the Versioned Short Text from file 80.1 that was appropriate for the date passed and the code identified by the input parameter IEN. Null if not found.

COMPONENT: $$VLTD(IEN,CDT)
This entry point retrieves the Versioned Long Text (description) for a diagnosis on a specified date.

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the DIAGNOSIS file 80 (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to retrieve the Versioned Long Text (description) that was appropriate for the date passed (Optional, If not passed TODAY is used).

VARIABLES: Output $$VLTD
This is the Versioned Long Text (description) from file 80 that was appropriate for the date passed and the code identified by the input parameter IEN. Null if not found.

COMPONENT: $$VLTP(IEN,CDT)
This entry point retrieves the Versioned Long Text (description) for a procedure on a specified date.

```
VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        OPERATION/PROCEDURE file 80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to retrieve the Versioned Long Text
                        (description) that was appropriate for the date
                        passed (Optional,  If not passed TODAY is used).

VARIABLES:  Output    $$VLTP
                        This is the Versioned Long Text (description) from
                        file 80.1 that was appropriate for the date passed
                        and the code identified by the input parameter
                        IEN.  Null if not found.

COMPONENT:  $$SD(FILE,IEN,CDT,.ARY,LEN)
            This entry point retrieves the Versioned Short Text for a
            procedure on a specified date.  This entry point is similar to
            $$VST except you can elect to have the Short Text returned in
            a local array and you can specify the string lengths of the
            text in the array.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        Versioned Short Text (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an internal entry number (IEN) in either
                        file 80 or 80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to retrieve the Versioned Short Text
                        that was appropriate for the date passed
                        (Optional,  If not passed TODAY is used).

VARIABLES:  Input     .ARY
                        This is a local array name passed by reference
                        that will contain the Short Text output.

VARIABLES:  Input     LEN
                        This is a number greater than 27 and less than 246
                        representing the desired text string lengths for
                        the Short Text output.  If specified, the output
                        will be parsed into strings not to exceed the
                        length specified (Optional, default 245)

VARIABLES:  Output    $$SD
                        This is the Versioned Short Text from either file
                        80 or 80.1 that was appropriate for the date
                        passed and the code identified by the input
                        parameter IEN.  If not found:
```

```
-1^Error Message
```

VARIABLES: Output ARY

If passed, this is a local array containing the number of text lines, the effective date of the Short Text and the text. If the input parameter LEN (length) is specified and the length is shorter than the Short Text, then the Short Text will be parsed into test strings not to exceed LEN.

```
ARY(0)=# lines ^ effective date
ARY(1)=Short Text
```

LEN is defined shorter than text

```
ARY(0)=# lines ^ effective date
ARY(1)=String length not to exceed LEN
ARY(n)=String length not to exceed LEN
```

Null if not found

COMPONENT: $$LD(FILE,IEN,CDT,.ARY,LEN)

This entry point retrieves the Versioned Long Text (description) for a procedure on a specified date. This entry point is similar to $$VLT except you can elect to have the Long Text (description) returned in a local array and you can specify the string lengths of the text in the array.

VARIABLES: Input FILE

This is the ICD file number used to retrieve the Versioned Long Text (description) (Required):

```
80   = ICD Diagnosis file
80.1 = ICD Operation/Procedure file
```

VARIABLES: Input IEN

This is an internal entry number (IEN) in either file 80 or 80.1 (Required)

VARIABLES: Input CDT

This is the Code Set Versioning date (Fileman format) used to retrieve the Versioned Long Text (description) that was appropriate for the date passed (Optional, If not passed TODAY is used).

VARIABLES: Input .ARY

This is a local array name passed by reference that will contain the Long Text (description) output.

VARIABLES: Input LEN

This is a number greater than 27 and less than 246 representing the desired text string lengths for the Long Text (description) output. If specified, the output will be parsed into strings not to exceed the length specified (Optional, default 245)

VARIABLES: Output $$LD

This is the Versioned Long Text (description) from either file 80 or 80.1 that was appropriate for the date passed and the code identified by the input parameter IEN. If not found:

```
-1^Error Message
```

VARIABLES: Output ARY

If passed, this is a local array containing the number of text lines, the effective date of the Long Text (description) and the text. If the input parameter LEN (length) is specified and the length is shorter than the Long Text (description), then the Long Text (description) will be parsed into test strings not to exceed LEN.

```
ARY(0)=# lines ^ effective date
ARY(1)=Long Text (description)
```

LEN defined shorter than text

```
ARY(0)=# lines ^ effective date
ARY(1)=String length not to exceed LEN
ARY(n)=String length not to exceed LEN
```

COMPONENT: PAR(.ARY,LEN)

This entry point takes text in a local array (passed by reference) and parses it into string lengths not to exceed the length specified.

VARIABLES: Input .ARY

This is a local array name passed by reference and contains the text to be parsed into strings not to exceed the length specified.

```
ARY(1) = Unparsed Text
```

VARIABLES: Input LEN

This is a number representing the desired text string lengths for the text found in ARY(). (Optional, default length 79)

VARIABLES: Output ARY

This is a local array containing the input text parsed so that each text string length does not exceed the length specified.

```
ARY(1)=Parsed Text length not to exceed LEN
ARY(n)=Parsed Text length not to exceed LEN
```

COMPONENT: $$STATCHK(CODE,CDT,SYS)

This entry point is used to determine the status (active or

```
             inactive) of a ICD code.

VARIABLES:   Input     CODE
                         This is either an ICD diagnosis or procedure code
                         (external format) (Required)

VARIABLES:   Input     CDT
                         This is the Code Set Versioning date (Fileman
                         format) used to retrieve the code's status,
                         internal entry number (IEN) and effective date
                         that was appropriate for the date passed
                         (Optional,  If not passed TODAY is used)

VARIABLES:   Input     SYS
                         This is an ICD coding system identifier (taken
                         from file 80.4).  The following coding systems are
                         found in files 80 and 80.1:

                              1 = ICD-9 Diagnosis
                             30 = ICD-10 Diagnosis
                              2 = ICD-9 Procedures
                             31 = ICD-10 Procedures

                         (Optional, but encouraged, if doesn't exist it
                         will try to determine coding system by input
                         parameter CODE)

VARIABLES:   Output    $$STATCHK
                         This is a three piece "^" delimited string

                            1  Status 1 = Active, 0 = Inactive
                            2  IEN or -1 on error
                            3  Effective Date or error message

                            Error           0 ^ -1 ^ Error message
                            Active Code     1 ^ IEN ^ Effective Date
                            Inactive Code   0 ^ IEN ^ Effective Date

COMPONENT:   $$DTBR(CDT,STD,SYS)
             This entry point returns the business rule date for a coding
             system.  This is in earliest date possible for a coding
             standard and/or a coding system.

VARIABLES:   Input     CDT
                         This is the Code Set Versioning date (Fileman
                         format) used to resolved the business rule date.
                         (Optional, if not passed TODAY is used)

VARIABLES:   Input     STD
                         This is a coding standard from a Standards
                         Development Organization (SDO).  A standard may
                         have one or more coding systems.  (Optional,
                         default is 0)

                             0 = ICD (Default)
                             1 = CPT/HCPCS
                             2 = DRG
```

```
VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional, there is no default
                        value for this parameter, if it does not exist
                        then it is not used)

                        The following coding systems are found in files 80
                        and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Output    $$DTBR
                        Date adjusted by business rules:

                        If Standard (SDT) = 0 (ICD)

                           If CDT < 2781001 use 2781001
                           If CDT < 3131001 and SYS=30, use 3131001
                           If CDT < 3131001 and SYS=31, use 3131001

                        If Standard (SDT) = 1 (CPT/HCPCS)

                           If CDT < 2890101 use 2890101

                        If Standard (SDT) = 2 (DRG)

                           If CDT < 2821001 use 2821001

                        If CDT is year only, use first of the year If CDT
                        is year and month only, use first of the month

COMPONENT:  $$IMP(SYS,CDT)
            This entry point returns the date a coding system was
            implemented (taken from file 80.4).

VARIABLES:  Input     SYS
                        This is a coding system (taken from file 80.4) or
                        a coding system identifier that can be resolved to
                        a coding system.

                           1 = ICD-9-CM
                           2 = ICD-9-PCS
                          30 = ICD-10-CM
                          31 = ICD-10-PCS

                          DX, DIAG, 80, ^ICD9(

                            1 = ICD-9-CM if CDT is before the ICD-10
                        implementation date
                           30 = ICD-10-CM if CDT is on or after the ICD-10
                        implementation date

                          PR, PROC, OPER, 80.1, ^ICD0(
                            2 = ICD-9-CM if CDT is before  the ICD-10
                        implementation date
                           31 = ICD-10-CM if CDT is on or after  the
                        ICD-10 implementation date

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to resolve the coding system
                        parameter SYS (Optional, if not passed TODAY is
                        used)

VARIABLES:  Output    $$IMP
                        This is the date that a coding system identified
                        by the input parameters SYS and CDT was
                        implemented in Fileman format or on error:

                        -1 ^ Error message

COMPONENT:  $$MSG(CDT,STD,SYS)
            This entry point returns a warning message that the text may
            be inaccurate for the date specified.  It applies only to
            ICD-9 Diagnosis and Procedures.

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the accuracy of the text
                        being returned (Optional, if not passed TODAY is
                        used)

VARIABLES:  Input     STD
                        This is a coding standard from a Standards
                        Development Organization (SDO).  A standard may
                        have one or more coding systems.  (Optional,
                        default is 0)

                            0 = ICD (Default)
                            1 = CPT/HCPCS
                            2 = DRG

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional, there is no default
                        value for this parameter, if it does not exist
                        then it is not used)

                        The following coding systems are found in files 80
                        and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Output    $$MSG
                        If coding system is not ICD-10 and the date passed
                        is before the Code Set Versioning project Oct 1,
                        2002, then this variable is set to the warning
                        message, "CODE TEXT MAY BE INACCURATE" otherwise
                        it is null.

COMPONENT:  $$SEL(FILE,IEN)
            This entry point determines if an entry in a file is
            selectable by calling applications.

VARIABLES:  Input     FILE
                        This is an ICD file number:

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified.

VARIABLES:  Output    $$SEL
                        This is a Boolean value:

                           1  Entry IEN in file FILE is Selectable
                           0  Entry IEN in file FILE is NOT Selectable

                        or

                        -1  on error

COMPONENT:  $$NEXT(CODE,SYS,CDT)
            This entry point returns the Next code in a sequence of codes
            in a coding system.

VARIABLES:  Input     CODE
                        This is either an ICD diagnosis, an ICD procedure
                        code or null to retrieve the first code in a
                        sequence.

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the next code being
                        returned (Optional, there is no default value for
                        this parameter)

                        If CDT date is not passed then this entry point
                        will return the next code, regardless of status
                        (active or inactive)

                        If CDT date is passed then this entry point will
                        return the next active code.

VARIABLES:  Output    $$NEXT
                        This is the next code in a sequence of codes.  If
                        the input code is null, then it will return the
                        first code of the sequence of codes.  If a date is
                        passed in the input parameter CDT, then it will
                        return the next active code in a sequence of
                        codes.

COMPONENT:  $$PREV(CODE,SYS,CDT)
            This entry point returns the Previous code in a sequence of
            codes in a coding system.

VARIABLES:  Input     CODE
                        This is either an ICD diagnosis, an ICD procedure
                        code or null to retrieve the last code in a
                        sequence.

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the Previous code being
                        returned (Optional, there is no default value for
                        this parameter)

                        If CDT date is not passed then this entry point
                        will return the previous code, regardless of
                        status  (active or inactive)

                        If CDT date is passed then this entry point will
                        return the previous active code.

VARIABLES:  Output    $$PREV
                        This is the previous code in a sequence of codes.
                        If the input code is null, then it will return the
                        last code of the sequence of codes.  If a date is
                        passed in the input parameter CDT, then it will
                        return the previous active code in a sequence of
                        codes.

COMPONENT:  $$HIST(CODE,.ARY,SYS)
            This entry point returns a code's activation history.
```

```
VARIABLES:  Input     CODE
                        This is an ICD diagnosis or procedure code.

VARIABLES:  Input     .ARY
                        This is a local array name passed by reference
                        that will contain the code's activation history.

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Output    $$HIST
                        This is set equal to the number of history entries
                        in the local array ARY or -1 if there is an error
                        or the code is not found.

VARIABLES:  Output    ARY
                        This is a local array containing the history
                        records

                           ARY(0) = Number of History Entries
                           ARY(<effective date>,<status>) = comment

COMPONENT:  $$PERIOD(CODE,.ARY,SYS)
            This entry point returns all the activation periods for a
            code.  An activation period is defined as the period of time
            between the beginning activation effective date and the ending
            inactivation effective date.  If the code is still active the
            period will have an activation date without an inactivation
            date.

VARIABLES:  Input     CODE
                        This is either an ICD diagnosis or procedure code.

VARIABLES:  Input     .ARY
                        This is a local array name passed by reference
                        that will contain the code's activation periods.

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

VARIABLES:  Output    $$PERIOD
                        This is a 2 piece "^" delimited string if
                        successful and 3 piece "^" delimited string if
                        unsuccessful or error.

                           1   IEN of code
                           2   Code is selectable (boolean 1/0)

                         or on error

                          -1 ^ 0 ^ Error Message

VARIABLES:  Output    ARY
                        This is a local array containing the Periods of
                        activation for the code

                        ARY(0)

                           This is a 2 piece "^" delimited string if
                           successful and a 3 piece "^" delimited string
                           if unsuccessful or error.

                             1   IEN of code
                             2   Code is selectable (boolean 1/0)

                           or on error

                            -1^0^Error Message

                        ARY(Activation Date) = Inactivation Date^Short
                        Name

                           Where the Short Name is the Versioned text, and
                        the
                           text is versioned as follows:

                           Period is active   - Text for TODAY's date
                           Period is inactive - Text for inactivation date

COMPONENT:  $$OBA(FILE,CODE,SYS,REV)
            This entry point is used to $ORDER through the BA or ABA
            cross-references and replaces the need to access the BA/ABA
            cross-references in a FOR loop.  This entry point is meant to
            replace BA cross-reference in ICRs 5388 and 5404.

              $$OBA(<file>,<code>,<system>) replaces:

                $O(^ICD9("BA",(<code>_" ")) and
                $O(^ICD0("BA",(<code>_" "))

              Examples:

              F  S CODE=$$OBA(80,CODE,1) Q:'$L(CODE)  D
              F  S CODE=$$OBA(80,CODE,30) Q:'$L(CODE)  D
              F  S CODE=$$OBA(80.1,CODE,2) Q:'$L(CODE)  D
```

```
               F  S CODE=$$OBA(80.1,CODE,31) Q:'$L(CODE)  D

VARIABLES:  Input     FILE
                        This is the ICD file number used to determine the
                        global root to $ORDER through (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     CODE
                        This is either an ICD diagnosis or procedure code
                        to $ORDER from (required):

                           $O(^ROOT("BA",(CODE_" ")))
                           $O(^ROOT("ABA",SYS,(CODE_" ")))

VARIABLES:  Input     SYS
                        This is either an ICD diagnosis or procedure

                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

                        If the coding system can be identified then the
                        "BA" cross-reference is ignored and the $ORDER
                        will be performed on the "ABA" cross-reference:

                           $O(^ROOT("ABA",SYS,(CODE_" ")))

                        The "ABA" cross-reference is a coding system
                        specific cross-reference.

VARIABLES:  Used      REV
                        This is a Reverse $ORDER flag, if set to 1, the
                        $ORDER operation will be in the reverse direction
                        of "BA" or "ABA" cross-reference (Optional,
                        default is 0, $ORDER forward)

                        If equal to 1

                           $O(^ROOT("BA",(CODE_" ")),-1)
                           $O(^ROOT("ABA",SYS,(CODE_" ")),-1)

VARIABLES:  Output    $$OBA
                        This is the Next or Previous Code in the "BA" or
                        "ABA" cross-reference depending on the $ORDER
                        direction established by the input parameter REV.

COMPONENT:  $$OD(FILE,WORD,SYS,REV)
            This entry point is used to $ORDER through the "D" or "AD"
            cross-reference and replaces the need to access the D/AD
            cross-references in a FOR loop.  This entry point is meant to
            replace the D cross-reference in ICRs 5388 and 5404.

              $$OD(<file>,<word>,<system>) replaces:

                $O(^ICD9("D",(<word>_" ")) and
                $O(^ICD0("D",(<word>_" "))

              Examples:

              F  S WORD=$$OD(80,WORD,1) Q:'$L(WORD)  D
              F  S WORD=$$OD(80,WORD,30) Q:'$L(WORD)  D
              F  S WORD=$$OD(80.1,WORD,2) Q:'$L(WORD)  D
              F  S WORD=$$OD(80.1,WORD,31) Q:'$L(WORD)  D

VARIABLES:  Input     FILE
                        This is the ICD file number used to determine the
                        global root to $ORDER through (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     WORD
                        This is a one or two piece "^" delimited string

                          1  WORD  This is a single word parsed from the
                                   codes description.

                          2  IEN   This is the internal entry number where
                                   the description can be found that
                                   contains the parsed word

                          WORD and IEN can be null.

                        $$OD $ORDER through "WORD^IEN" on either the D or
                        AD cross-references

                        Coding System unknown:  $O(^ROOT("D",WORD,IEN))
                        Coding System known:
                        $O(^ROOT("AD",SYS,WORD,IEN))

VARIABLES:  Input     SYS
                        This is an ICD coding system identifier (taken
                        from file 80.4).  (Optional)

                        The following coding systems are found in ICD
                        files 80 and 80.1:

                             1 = ICD-9 Diagnosis
                            30 = ICD-10 Diagnosis
                             2 = ICD-9 Procedures
                            31 = ICD-10 Procedures

                        If the coding system can be identified then the
                        "D" cross-reference is ignored and the $ORDER will
                        be performed on the "AD" cross-reference:
```

```
$O(^ROOT("AD",SYS,(CODE_" ")))
```

The "AD" cross-reference is a coding system specific cross-reference.

VARIABLES: Input REV

This is a Reverse $ORDER flag, if set to 1, the $ORDER operation will be in the reverse direction of "D" or "AD" cross-reference (Optional, default is 0, $ORDER forward)

If equal to 1

```
$O(^ROOT("D",WORD)),-1)
$O(^ROOT("AD",SYS,WORD)),-1)
```

VARIABLES: Output $$OD

This is a 2 piece "^" delimited string containing the Next or Previous Word in the "D" or "AD" cross-reference and accompanying IEN depending on the $ORDER direction established by the input parameter REV.

WORD^IEN taken from cross-references

```
^ROOT("D",WORD,IEN) or
^ROOT("AD",SYS,WORD,IEN)
```

COMPONENT: $$DLM(FILE,IEN,FIELD,CDT)

This entry point returns the date a record or field was last modified. If the field number is passed, then the date last modified (based on date) for the field is returned. If the field is not passed, then the date last modified (based on date) for the record at IEN is returned. The following are valid versioned fields:

File 80

10	Sex	5;0
11	Age Low	6;0
12	Age High	7;0
66	Status	66;0
67	Diagnosis	67;0
68	Description	68;0
71	DRG Grouper	3;0
72	Major Diagnostic Category	4;0
103	Complication/Comorbidity	69;0

File 80.1

10	Sex	3;0
66	Status	66;0
67	Operation/Procedure	67;0
68	Description	68;0
71	DRG Grouper	2;0

```
VARIABLES:  Input     FILE
                        This is the ICD file number used to determine the
                        global root to $ORDER through (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required)

VARIABLES:  Input     FIELD
                        This is the field number of a versioned data
                        element in the file specified.  (Optional, with no
                        default value)

                        If the field number is provided then this API will
                        return the date that the field was last modified.

                        If the field number is not provided then this API
                        will return the date that the record was last
                        modified.

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the date last modified
                        (Optional, if not provided then TODAY is used)

VARIABLES:  Output    $$DLM
                        This is the date last modified for the record
                        identified by the input parameters FILE and IEN.
                        If the input parameter FIELD is set to a valid
                        versioned field then this will be the date that
                        the field was last modified.

                        or -1 ^ message on error

COMPONENT:  $$CS(FILE,FMT,CDT)
            This is an interactive entry point to select a coding system.

VARIABLES:  Input     FILE
                        This is the ICD file number used to select a
                        coding system (Optional, if not provided you will
                        be prompted for an ICD file Number):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     FMT
                        This is a flag to determine the display format for
                        the prompts:

                           E  Display External only (default)
                           I  Display External with Internal

                           Prompt using External only, default:
```

```
                           FMT=E      1   ICD-9-CM
                                      2   ICD-10-CM

                           Prompt using External with Internal:

                           FMT=I      1   ICD-9-CM       (#1)
                                      2   ICD-10-CM      (#30)

VARIABLES:  Input     CDT
                        This is an optional date to use in selecting a
                        coding system.  If passed, only coding systems
                        with an implementation date on or before the date
                        passed are selectable (optional)

VARIABLES:  Output    $$CS
                        This is a 2 piece "^" delimited string

                        1  Coding System (internal) 2  Coding System
                        (external)

                        or  -1  on error or non-selection or  ^^  double
                        up-arrows or  ^   timeout or single up-arrow

COMPONENT:  $$EFF(FILE,IEN,CDT)
            This entry point returns a codes status, inactivation date and
            activation date (replaces EFF^ICDSUPT)

VARIABLES:  Input     FILE
                        This is an ICD file number (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the status and effective
                        dates on the date specified (Optional, if not
                        provided then TODAY is used)

VARIABLES:  Output    $$EFF
                        This is a 3 piece "^" delimited string

                            1   Status
                                1 - Active
                                0 - Inactive
                            2   Inactivation Date
                            3   Activation Date

                         or
                           -1^error message

COMPONENT:  $$LA(FILE,IEN,CDT)
```

This entry point returns the last activation effective date based on a date passed.

VARIABLES: Input FILE
This is an ICD file number (Required):

80 = ICD Diagnosis file
80.1 = ICD Operation/Procedure file

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the file specified (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to determine the last activation date based on the date specified (Optional, if not provided then TODAY is used)

VARIABLES: Output $$LA
This is the last activation date (Fileman format) or

-1^Not activated on or before date specified

COMPONENT: $$LI(FILE,IEN,CDT)
This entry point returns the last inactivation effective date based on a date passed.

VARIABLES: Input FILE
This is an ICD file number (Required):

80 = ICD Diagnosis file
80.1 = ICD Operation/Procedure file

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the file specified (Required)

VARIABLES: Input CDT
This is the Code Set Versioning date (Fileman format) used to determine the last inactivation date based on the date specified (Optional, if not provided then TODAY is used)

VARIABLES: Output $$LI
This is the last inactivation date (Fileman format) or

-1^Not inactivated on or before date specified

COMPONENT: $$LS(FILE,IEN,CDT)
This entry point returns the last code status based on a date passed.

VARIABLES: Input FILE
This is an ICD file number (Required):

```
                           80   = ICD Diagnosis file
                           80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the last code status
                        based on the date specified (Optional, if not
                        provided then TODAY is used)

VARIABLES:  Output    $$LS
                        This is the last code status based on the date
                        passed.

                            1 - Active
                            0 - Inactive

                         or

                          -1^No status on or before date specified

COMPONENT:  $$NUM(CODE)
            This entry point converts a code to a numeric representation
            (found on the AN cross-reference)

VARIABLES:  Input     CODE
                        This is either an ICD diagnosis or procedure code
                        (Required)  (This is the opposite of $$COD)

VARIABLES:  Output    $$NUM
                        This is a numeric representation of a code.

COMPONENT:  $$COD(NUM)
            This entry point converts a numeric representation of a code
            to a code (found on the AN cross-reference)

VARIABLES:  Input     NUM
                        This is a numeric representation of an ICD
                        diagnosis or procedure code (This is the opposite
                        of $$NUM)

VARIABLES:  Output    $$COD
                        This is an ICD diagnosis or procedure code.

COMPONENT:  $$IE(CODE)
            This entry point determines if a code is in an external or
            internal format without plusing (+) the code.

            If you have an ICD-10 code with the letter "E in the center
            and plus it you will receive a MAXNUMBER error.

            Example:  If you plus (+) the ICD-10 procedure code "041E499"
            it will be interpreted as a scientific notation (E499 is a
            really big number).  Applications that plus the ICD code can
            use this entry point to safely determine a code's format.

VARIABLES:    Input     CODE
                        This is either an ICD diagnosis or procedure code
                        (Required)

VARIABLES:    Output    $$IE
                        This is a set of codes as follows:

                           I  CODE is in an internal format (IEN)
                           E  CODE is in an external format (Code)

                        or

                           Null on error

COMPONENT:    $$FILE(SYS)
            This entry point will return an ICD file number.

VARIABLES:    Input     SYS
                        This is a coding system, a global root or a file
                        identifier.

                        Global roots ^ICD9( and ^ICD0( are acceptable
                        Coding Systems can be found in file 80.4 File
                        Identifier:  DX or PR
                                          DIAG or PROC or OPER

VARIABLES:    Output    $$FILE
                        This is an ICD file number 80 or 80.1

                        or -1 on error

COMPONENT:    $$ROOT(SYS)
            This entry point will return an ICD global root.

VARIABLES:    Input     SYS
                        This is a coding system, file number, a file
                        identifier or even an ICD code, provided the code
                        is unique to a file.

                        Coding Systems can be found in file 80.4 File
                        Number 80 or 80.1 File Identifier:  DX or PR
                                          DIAG or PROC or OPER

VARIABLES:    Output    $$ROOT
                        This is a global root ^ICD9( or ^ICD0( or Null on
                        error

COMPONENT:    $$SYS(SYS,CDT,FMT)
            This entry point will return a coding system.

VARIABLES:    Input     SYS
                        This can be either a Coding System name,
                        Abbreviation, system identifier (uses date) or a
                        code.
                        Coding System Names: ICD-9-CM, ICD-9 Proc,
                        ICD-10-CM or ICD-10-PCS

                        Coding System Abbreviations: ICD, ICP, 10D or 10P

                        System Identifier (with date CDT)

                          Date is before the ICD-10 implementation date

                            DIAG, ICD9, 80, DX =  1
                            PROC, OPER, ICD0, ICP9, 80.1, PR = 2

                          Date is on or after the ICD-10 implementation
                        date

                            DIAG, ICD9, 80, DX =  30
                            PROC, OPER, ICD0, ICP9, 80.1, PR = 31

                        An ICD code

                           If an ICD code is unique to an ABA
                           cross-reference then the Coding System
                           can be determined from a code

                            ^ICD9("ABA",1,(CODE_" "))    = 1
                            ^ICD9("ABA",30,(CODE_" "))  = 30
                            ^ICD9("ABA",2,(CODE_" "))    = 2
                            ^ICD9("ABA",31,(CODE_" "))  = 31

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the coding system based
                        on a system identifier (Optional, if not provided
                        then TODAY is used)

VARIABLES:  Input     FMT
                        This is a single character identifying the desired
                        output format (Optional, default is "I"):

                            I  Internal (default)
                            E  External
                            B  Both Internal ^ External

VARIABLES:  Output    $$SYS
                        This is the Coding System in the format specified
                        by the input parameter FMT:

                          FMT=I     FMT=E        FMT=B
                          Internal  External     Both

                             1      ICD-9-CM     1^ICD-9-CM
                             2      ICD-9 Proc   2^ICD-9 Proc
                            30      ICD-10-CM    30^ICD-10-CM
                            31      ICD-10-PCS   31^ICD-10-PCS

                         or
```

```
                          -1   on error

COMPONENT:  $$SINFO(SYS,CDT)
            This entry point returns coding system information taken from
            file 80.4.

VARIABLES:  Input     SYS
                        This can be either a Coding System name,
                        Abbreviation, system identifier, file number or a
                        code.  (system identifier and code uses date).

                        Coding System Names:

                          ICD-9-CM
                          ICD-9 Proc
                          ICD-10-CM or
                          ICD-10-PCS

                        Coding System Abbreviations:

                          ICD, ICP, 10D or 10P

                        System Identifier/File Number (with date CDT)

                           Date is before the ICD-10 implementation date

                             DIAG, ICD9, 80, DX =  1
                             PROC, OPER, ICD0, ICP9, 80.1, PR = 2

                           Date is on or after the ICD-10 implementation
                        date

                             DIAG, ICD9, 80, DX =  30
                             PROC, OPER, ICD0, ICP9, 80.1, PR = 31

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the coding system based
                        on a system identifier (Optional, if not provided
                        then TODAY is used)

VARIABLES:  Output    $$SINFO
                        This is a 6 piece "^" delimited string

                            1      IEN to file 80.4
                            2      Coding System
                            3      Coding System Abbreviation
                            4      File Number
                            5      Implementation Date
                            6      Content

                         or

                           -1   on error

COMPONENT:  $$SNAM(SYS)
```

```
            This entry point returns the coding system name.

VARIABLES:  Input     SYS
                        This is a pointer to the coding system file 80.4

VARIABLES:  Output    $$SNAM
                        This the coding system name, file 80.4 (.01)

                            ICD-9-CM
                            ICD-9 Proc
                            ICD-10-CM
                            ICD-10-PCS

                          Or  -1   on error

COMPONENT:  $$SAB(SYS,CDT)
            This entry point returns the coding system abbreviation.

VARIABLES:  Input     SYS
                        This can be either a Coding System name,
                        Abbreviation, system identifier (uses date) or a
                        code.

                        Coding System Names: ICD-9-CM, ICD-9 Proc,
                        ICD-10-CM or ICD-10-PCS

                        Coding System Abbreviations: ICD, ICP, 10D or 10P

                        System Identifier (with date CDT)

                           Date is before the ICD-10 implementation date

                             DIAG, ICD9, 80, DX =  1
                             PROC, OPER, ICD0, ICP9, 80.1, PR = 2

                           Date is on or after the ICD-10 implementation
                        date

                             DIAG, ICD9, 80, DX =  30
                             PROC, OPER, ICD0, ICP9, 80.1, PR = 31

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the source abbreviation
                        based on a system identifier (Optional, if not
                        provided then TODAY is used)

VARIABLES:  Output    $$SAB
                        3 Character Coding System abbreviation, file 80.4
                        (.02)

                            ICD
                            ICP
                            10D
                            10P

                          Or  -1   on error
```

```
COMPONENT:  $$EXC(FILE,IEN)
            This entry point returns a boolean value indicating if an
            entry in the specified file is to be excluded from lookup.  If
            it is to be excluded, then the entry will not be placed on the
            selection list for a user to select from.  Used primarily for
            the special lookup.

VARIABLES:  Input     FILE
                        This is an ICD file number:

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified.

VARIABLES:  Output    $$EXC
                        Boolean value

                           1 = Yes, exclude from lookup
                           0 = No, include in the lookup

COMPONENT:  $$ISA(IEN1,IEN2,FIELD)
            This entry point returns a boolean value indicating that one
            code is a "condition" of another.  Conditions include:

               Code 1 is Not Used With Code 2
               Code 1 is Required With Code 2
               Code 1 is Not Considered CC With Code 2

VARIABLES:  Input     IEN1
                        This is the internal entry number (IEN) of a code
                        in file 80 that has a relationship with the code
                        at IEN2  IEN1 is equivalent to Fileman's DA and
                        identifies a code stored in a multiple in field
                        20, 30, 40 or pointed to by field 1.11.

VARIABLES:  Input     IEN2
                        This is the internal entry number (IEN) of a code
                        in file 80 that may have other codes (IEN1)
                        associated with it.  IEN2 is equivalent to
                        Fileman's DA(1) and identifies the code in the .01
                        field.

VARIABLES:  Input     FIELD
                        This is a field number in file 80 that contains
                        one or more ICD codes that have a relationship to
                        the main entry.   Acceptable field numbers and the
                        type of relationships to check include:

                         Field       Relationship
                         20          Code 1 Not Used With Code 2
                         30          Code 1 Required With Code 2
                         40 or 1.11  Code 1 Not Considered CC With Code 2
```

```
VARIABLES:  Output    $$ISA
                        This is a Boolean value

                           1   Yes/The relationship is True
                           0   No/The relationship is False

                           Field       Answers the Question
                           -----       --------------------------------
                           20          Code 1 (identified by IEN1) is
                                       not used with Code 2 (identified
                                       by IEN2)

                           30          Code 1 (identified by IEN1) is
                                       required with Code 2 (identified
                                       by IEN2)

                           40 or 1.11  Code 1 (identified by IEN1) is
                                       not considered Complication
                                       Comorbidity (CC) with Code 2
                                       (identified by IEN2)

COMPONENT:  $$EXIST(IEN,FIELD)
            This entry point determines if special condition ICD codes
            exist.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Input     FIELD
                        This is a field number in file 80 that contains
                        one or more ICD codes that have a relationship to
                        the main entry (Required)  Acceptable field
                        numbers to check include:

                           20   Code Not Used With
                           30   Code Required With
                           40   Code Not Considered CC With

VARIABLES:  Output    $$EXIST
                        Boolean value

                           1   Yes/True, codes exist
                           0   No/False, codes do not exist

                           Field   Answers the Question
                           -----   ------------------------------
                           20      Are there any codes that should
                                   not be used with this code (IEN)
                           30      Are there any codes required
                                   with this code (IEN)
                           40      Are there any codes that are not
                                   considered CC with this code
                                   (IEN)

COMPONENT:  $$GETDRG(FILE,IEN,CDT,MDC)
            This entry point returns a string of DRGs for an ICD Diagnosis
            or Procedure code.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        DRGs (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the DRGs that were
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)

VARIABLES:  Input     MDC
                        This is a Major Diagnostic Category (pointer to
                        file 80.3) used as a screen to limit the DRGs to
                        an MDC.  This input parameter only applies to the
                        ICD OPERATIONS/PROCEDURE file 80.1 which has
                        multiple MDCs, each with a possibility of multiple
                        DRGs  (Conditional)

VARIABLES:  Output    $$GETDRG
                        3 piece semi-colon ";" delimited string

                           1  DRGs delimited by ^
                           2  Fiscal Year
                           3  Status flag
                              0 inactive
                              1 active

                        Example output:

                           907^908^909^;3071001;1

                        On Error:

                           -1;No DRG level;0

COMPONENT:  MD(FILE,IEN,CDT,.ARY,FLAG)
            This entry point returns an array of Major Diagnostic
            Categories (MDCs) and Diagnosis Related Groups (DRGs)

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        Major Diagnostic Categories (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDCs that were
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)  NOTE:  If no Fiscal Year is
                        found for the input date then the first (earliest(
                        Fiscal Year is used.

VARIABLES:  Input     .ARY
                        This is a local array name passed by reference
                        that will contain a list of MDCs by effective date

VARIABLES:  Input     FLAG
                        This is a flag that determines the output format:

                           I   = Internal (default) Internal values
                                 are always returned

                           E   = Include External values with Internal
                                 values

VARIABLES:  Output    ARY
                        ICD Procedures file 80.1 (multiple MDC)

                           ARY(<fiscal year>,<MDC>)=DRG^;FY;STA
                           ARY(<fiscal year>,<MDC>)="DRG^DRG^;FY;STA

                           If Flag contains "E"

                           ARY(<fiscal year>,"E",<MDC>)=MDC Name
                           ARY(<fiscal year>,"E",<MDC>,<DRG>)=DRG Name
                           ARY(<fiscal year>,"E",<MDC>)=MDC Name
                           ARY(<fiscal year>,"E",<MDC>,<DRG>)=DRG Name
                           ARY(<fiscal year>,"E",<MDC>,<DRG>)=DRG Name
                           ARY(<fiscal year>,"E","FY")=External FY

                        ICD Diagnosis file 80 (single MDC)

                           ARY(<fiscal year>,<MDC>)="DRG^DRG^;FY;STA

                           If Flag contains "E"

                           ARY(<fiscal year>,"E",<MDC>)=MDC Name
                           ARY(<fiscal year>,"E",<MDC>,<DRG>)=DRG Name
                           ARY(<fiscal year>,"E",<MDC>,<DRG>)=DRG Name
                           ARY(<fiscal year>,"E","FY")=External FY

                        NOTE:  If no Fiscal Year found for the input date
                        then the first (earliest) Fiscal Year is used.

COMPONENT:  $$EFM(CDT)
            This entry point converts an external date to a Fileman
            internal date.  This entry point replaces unsupported
            $$DGY2K^DGPTOD0(X)
```

```
VARIABLES:  Input     CDT
                        External date (Required), examples of valid dates:

                           JAN 20 1957 or 20 JAN 57
                           1/20/57 or 012057
                           T   (for TODAY)
                           T+1 (for TOMORROW),  T+2,  etc.
                           T-1 (for YESTERDAY)
                           T-3W (for 3 WEEKS AGO), etc.

VARIABLES:  Output    $$EFM
                        Internal Fileman Date

                        or -1 on error

COMPONENT:  $$FY(CDT)
            This entry point returns the 4 digit fiscal year for a
            specified date.  This entry point replaces unsupported
            $$FY^DGPTOD0(X)

VARIABLES:  Input     CDT
                        This is an internal Fileman date.

VARIABLES:  Output    $$FY
                        This is a 4 digit fiscal year (YYYY) for the date
                        specified or null on error.

COMPONENT:  $$VMDCDX(IEN,CDT)
            This entry point returns the versioned Major Diagnostic Code
            for an ICD Diagnosis.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDCs that was
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)

VARIABLES:  Output    $$VMDCDX
                        This is a single MDC (pointer to file 80.3) active
                        on the date specified.

COMPONENT:  $$VMDCOP(IEN,MDC,CDT)
            This entry point returns the versioned Major Diagnostic Codes
            for an ICD Procedure.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        OPERATION/PROCEDURE file 80.1 (Required)

VARIABLES:  Input     MDC
                        This is a Major Diagnostic Category (pointer to
                        file 80.3) used as a screen to limit the results
                        to a single MDC (Required)
```

```
VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDC that was
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)

VARIABLES:  Output    $$VMDCOP
                        4 piece "^" delimited string

                           1   Fiscal Year, Fileman format
                           2   MDC, pointer to file 80.3
                           3   Fiscal Year, pointer to sub-file
                               80.171 (formerly DADRGFY)
                           4   MDC, pointer to sub-file 80.1711
                               (formerly DAMDC)

COMPONENT:  MDCG(IEN,CDT,.ARY)
            This entry point sets up an array of MDCs (later used in
            $$MDCT)

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDCs that were
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)

VARIABLES:  Input     .ARY
                        This is a local array name passed by reference
                        that will contain a list of MDCs (Required)

VARIABLES:  Output    ARY
                        This is an array listing MDCs for all DRGs
                        associated with a diagnosis on the date specified.

                           ARY(MDC)=""
                           ARY(MDC)=""

COMPONENT:  $$MDCT(IEN,CDT,.ARY,FMT)
            This entry point compares a single entry in the ICD
            OPERATIONS/PROCEDURE file 80.1 to an array of Major Diagnostic
            Categories to see if the ICD procedure is assigned to one or
            more of the MDCs in the array.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        OPERATIONS/PROCEDURE file 80.1 (Required)

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDCs that were
                        appropriate on that date (Optional, if not passed
                        then TODAY is used)
```

```
VARIABLES:  Input     .ARY
                        This is a local array passed by reference
                        containing a list of MDCs for comparison
                        (Required)

VARIABLES:  Input     FMT
                        This is a flag defining the output format
                        (optional):

                           0   Boolean value only (default)
                           1   2 piece "^" delimited string

                               1   Boolean value
                               2   String of matching MDCs
                                   delimited by ";"

VARIABLES:  Output    $$MDCT
                        Boolean value

                           0  The ICD Procedure code identified by IEN
                              does not include any of the MDCs passed
                              in .ARY(MDC) on the date specified (CDT)

                           1  The ICD Procedure code identified by IEN
                              includes one or more of the MDCs passed
                              in .ARY(MDC) on the date specified (CDT)

                        Assuming the following input parameters:

                           IEN=4
                           CDT=3111110
                           ARY(2)=""
                           ARY(21)=""

                           Output format when input parameter FMT=0
                           (default)

                              $$MDCT(IEN,CDT,.ARY) = "1"

                           Output format when input parameter FMT=1

                              $$MDCT(IEN,CDT,.ARY) = "1^2;21"

COMPONENT:  $$MDCD(IEN,MDC,CDT)
            This entry point checks for a Major Diagnostic Category MDC in
            the ICD OPERATION/PROCEDURE file.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        OPERATIONS/PROCEDURE file 80.1 (Required)

VARIABLES:  Input     MDC
                        This is a Major Diagnostic Category (pointer to
                        file 80.3) (Required)

VARIABLES:  Input     CDT
```

```
                        This is the Code Set Versioning date (Fileman
                        format) used to identify the MDCs that were
                        appropriate on that date (Optional, if not passed
                        then the first FY is used)

VARIABLES:  Output    $$MDCD
                        Boolean value

                           0  MDC does not exist on date specified
                           1  MDC exist on date specified

COMPONENT:  $$MOR(IEN)
            This entry point returns the Major O.R. Procedure string

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        OPERATIONS/PROCEDURE file 80.1 (Required)

VARIABLES:  Output    $$MOR
                        Major O.R. Procedure or Null if the procedure is
                        not defined as a Major O.R. Procedure or is not
                        found

                        Major O.R. Procedure definitions include:

                        1   Bowel                 2  Chest          3
                        Lymphoma/Leukemia     4  Joint 5   Pancreas/Liver
                             6  Pelvic 7   Shoulder/Elbow        8
                        Thumb/Joint 9   Head/Neck             A  Cardio M
                        Musculoskeletal       B  Spine

COMPONENT:  $$UPDX(IEN)
            This entry point determines if a diagnosis is unacceptable as
            a principle diagnosis.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Output    $$UPDX
                        Boolean value, answers the question:

                           Is the diagnosis UNACCEPTABLE as a Principle
                        DX?

                           1   Yes  Code is Unacceptable as Principle DX
                           0   No   Code is Acceptable as Principle DX

COMPONENT:  $$NOT(IEN,SUB,FMT)
            This entry point returns the number of ICD codes that cannot
            be used with a specified code.  It can also return a global
            array containing a list of the codes that cannot be used with
            the specified code.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)
```

```
VARIABLES:  Input     SUB
                        This is a subscript name used in a ^TMP global
                        array (Optional, if not provided, the subscript
                        "ICDNOT" will be used)

                            ^TMP(SUB,$J)

VARIABLES:  Input     FMT
                        This is a flag defining the output format.

                          0 - Total number only (default)
                          1 - Total number with global array

VARIABLES:  Output    $$NOT
                        The number of ICD codes that cannot be used with
                        the ICD code identified by IEN (FMT=0 or 1)

                        TMP global array as follows (FMT=1):

                           ^TMP(SUB,$J,IEN)=CODE
                           ^TMP(SUB,$J,"B",(CODE_" "),IEN)=""

COMPONENT:  $$REQ(IEN,SUB,FMT)
            This entry point returns the number of ICD codes that are
            required when the specified code is used.  It can also return
            a global array containing a list of the codes that are
            required when the specified code is used.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Input     SUB
                        This is a subscript name used in a ^TMP global
                        array (Optional, if not provided, the subscript
                        "ICDREQ" will be used)

                            ^TMP(SUB,$J)

VARIABLES:  Input     FMT
                        This is a flag defining the output format.

                          0 - Total number only (default)
                          1 - Total number with global array

VARIABLES:  Output    $$REQ
                        The number of ICD codes required when the ICD code
                        identified by IEN is used. (FMT=0 or 1)

                        TMP global array as follows (FMT=1):

                           ^TMP(SUB,$J,IEN)=CODE
                           ^TMP(SUB,$J,"B",(CODE_" "),IEN)=""

COMPONENT:  $$NCC(IEN,SUB,FMT)
            This entry point returns the number of ICD codes that are not
            considered CC with a specified code.  It can also return a
            global array containing a list of the codes that are not
            considered CC with a specified code.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the
                        DIAGNOSIS file 80 (Required)

VARIABLES:  Input     SUB
                        This is a subscript name used in a ^TMP global
                        array (Optional, if not provided, the subscript
                        "ICDNCC" will be used)

                            ^TMP(SUB,$J)

VARIABLES:  Input     FMT
                        This is a flag defining the output format.

                          0 - Total number only (default)
                          1 - Total number with global array

VARIABLES:  Output    $$NCC
                        The number of ICD codes not considered CC with the
                        code identified by IEN. (FMT=0 or 1)

                        TMP global array as follows (FMT=1):

                           ^TMP(SUB,$J,IEN)=CODE
                           ^TMP(SUB,$J,"B",(CODE_" "),IEN)=""

COMPONENT:  LK
            Special Lookup (called by DIC)

            This is the Special Lookup program for files 80 and 80.1.
            Only the ^DIC call honors the special lookup routines.  Those
            calls that allow the user to specify the indexes (IX^DIC and
            MIX^DIC1), and the Data Base Server calls (FIND^DIC,
            $$FIND1^DIC, and UPDATE^DIE) all ignore the Special Lookup
            Program.  Also, if DIC(0) contains an "I" then the Special
            Lookup program will be ignored.

            This routine uses a majority of the variables used in calling
            Fileman ^DIC.  In addition to the Fileman variables, there are
            three special variables that aid in controlling the lookup
            that can be set and killed by the calling application;

              Versioning Date (Fileman format)

                 ICDVDT or
                 ^TMP("ICDEXLK",$J,"ICDVDT")=<versioning date>

              Coding System (from file 80.4)

                 ICDSYS or
                 ^TMP("ICDEXLK",$J,"ICDSYS")=<coding system>

              Display Format (numeric, 1-4) (new)
```

```
                 ICDFMT or
                 ^TMP("ICDEXLK",$J,"ICDFMT")=<display format>

VARIABLES:  Input     ICDVDT
                        Versioning Date (Fileman format)

                          ICDVDT or
                          ^TMP("ICDEXLK",$J,"ICDVDT")=<date>

                        This is a Code Set Versioning Date (in Fileman
                        format).  If set, it must also be killed by the
                        calling application.

                        If supplied, it is assumed that the lookup is to
                        be a versioned lookup and only active codes on
                        that date will be included in the selection list.

                        If not supplied, the date will default to TODAY
                        and all codes may be selected, active and
                        inactive.

                        In both cases the display will be altered based on
                        the date.

VARIABLES:  Input     ICDSYS
                        Coding System (from file 80.4)

                          ICDSYS or
                          ^TMP("ICDEXLK",$J,"ICDSYS")=<coding system>

                        This is the Coding System taken from file 80.4.
                        If set, it must be killed by the calling
                        application.  It may be any of the following:

                            1    ICD    ICD-9-CM
                            2    ICP    ICD-9 Proc
                           30    10D    ICD-10-CM
                           31    10P    ICD-10-PCS

                        If supplied, the lookup will only look in the
                        cross-references specific for that coding system.

VARIABLES:  Input     ICDFMT
                        Display Format (numeric, 1-4)

                          ICDFMT or
                          ^TMP("ICDEXLK",$J,"ICDFMT")=<display format>

                        This is a flag defining a Display Format (numeric,
                        1-4).  If set, it must be killed by the calling
                        application.

                        1 = Fileman format, code and short text
                            (default)

                            250.00    DMII WO CMP NT ST UNCNTR
                        2 = Fileman format, code and description

                            250.00    DIABETES MELLITUS WITHOUT
                                      MENTION OF COMPLICATION,
                                      TYPE II OR UNSPECIFIED TYPE,
                                      NOT STATED AS UNCONTROLLED

                        3 = Lexicon format, short text followed
                            by code

                            DMII WO CMP NT ST UNCNTR (250.00)

                        4 = Lexicon format, description followed
                            by code

                            DIABETES MELLITUS WITHOUT MENTION OF
                            COMPLICATION, TYPE II OR UNSPECIFIED
                            NOT STATED AS UNCONTROLLED (250.00)


VARIABLES:  Input     X
                        This is the user's input, if not available the
                        user will be prompted for input.

VARIABLES:  Input     FILEMAN
                        FileMan Variables used

                           DIC, DIC(0), DIC("A"), DIC("B"),
                           DIC("S"), DIC("W"), DIC("?N",<file>)

                        FileMan Variables not used:

                           DIC("DR"),DIC("PTRIX",<fm>,<to>,<file>),
                           DIC("T"), DIC("V"), DIC("?PARAM")

                        DIC(0) parameters applicable to a versioned file

                           A   Ask the entry; if erroneous, ask again
                           B   Only the B index is used
                           E   Echo information
                           F   Forget the lookup value
                           I   Ignore the special lookup program
                           O   Only find one entry if it matches exactly
                           Q   Question Input ??
                           S   Suppresses display of .01
                           T   Search until user selects or enters ^^
                           X   EXact match required
                           Z   Zero node in Y(0), external form in Y(0,0)

                        DIC(0) parameters NOT applicable to a versioned
                        file and not used

                           C   Versioned cross-references not turned off
                           K   Primary Key not established
                           L   Learning a new entry LAYGO not allowed
                           M   Multiple-index lookup allowed
                           N   Uppercase, IEN lookup allowed (not forced)
                           n   ICD has no pure numeric entries
                           U   All values are external
                           V   Verification is not optional

                        FileMan Variables KILLed:

                           DLAYGO
                           DINUM

VARIABLES:  Output    Y
                        Fileman Compliant:

                           Y        IEN ^ Code

                           If DIC(0) containing "Z"

                           Y(0)     0 Node
                           Y(0,0)   Code

                        Non-Fileman Compliant, DIC(0) contains "Z"

                           Y(0,1)   $$ICDDX or $$ICDOP
                           Y(0,2)   Long Description

COMPONENT:  $$LKTX(X,ROOT,CDT,SYS,VER,OUT)
            This entry point is a lookup for text in either file 80 or
            80.1  It is similar to the special lookup except there is no
            prompt for input or display for selection (silent) and
            intended for GUI applications.

VARIABLES:  Input     X
                        This is a string of text to search for.

VARIABLES:  Input     ROOT
                        This is either a global root or file number to
                        indicate either the DIAGNOSIS file 80 or the
                        OPERATIONS/PROCEDURE file 80.1

VARIABLES:  Input     CDT
                        This is the Code Set Versioning date (Fileman
                        format) used to determine the status of a code
                        (active or inactive) It normally represents the
                        date that service was provided to the patient
                        (HIPAA).  However, it may also represent the date
                        of onset, visit date or movement date depending on
                        the application calling the lookup.

VARIABLES:  Input     SYS
                        This is a coding system identifier (pointer to
                        file 80.4)

                           1 = ICD-9-CM
                           2 = ICD-9-PCS
                          30 = ICD-10-CM
                          31 = ICD-10-PCS
```

```
VARIABLES:  Input     VER
                        This is the versioned flag (boolean) to indicate
                        if the lookup is to be versioned or not:

                           0  No   Include all codes, active
                                   and inactive

                           1  Yes  Include only Active codes
                                   for date specified

VARIABLES:  Input     OUT
                        This is a flag that defines the output format:

                          1  Fileman, Code and Short Text (default)

                             250.00    DMII WO CMP NT ST UNCNTR

                          2  Fileman, Code and Description

                             250.00    DIABETES MELLITUS WITHOUT
                                       MENTION OF COMPLICATION TYPE
                                       II OR UNSPECIFIED TYPE, NOT
                                       STATED AS UNCONTROLLED

                          3  Lexicon, Short Text and Code

                             DMII WO CMP NT ST UNCNTR (250.00)

                          4  Lexicon, Description and Code

                             DIABETES MELLITUS WITHOUT MENTION OF
                             COMPLICATION, TYPE II OR UNSPECIFIED,
                             NOT STATED AS UNCONTROLLED (250.00)

VARIABLES:  Output    $$LK
                        This is the number of entries found

                        The entries will be included in a ^TMP Global
                        Array:

                           ^TMP(ID,$J,"SEL")
                           ^TMP(ID,$J,"SEL",0)=# of entries
                           ^TMP(ID,$J,"SEL",#)=IEN ^ Display Text

                          Where ID is a package namespaced subscript:

                           ICD9 - for file #80
                           ICD0 - for file #80.1

COMPONENT:  $$VER(SYS,REL)
            This API returns the current Coding System version, the
            previous Coding System version or the next Coding System
            version based on input parameters.

VARIABLES:  Input     SYS
                        This is a pointer to the coding system file 80.4
```

```
VARIABLES:  Input     REL
                        This input parameter indicates the relationship of
                        the output coding system to the input coding
                        system (Optional)

                           0   N/A - Return the current version (default)
                           1   Return the next version
                          -1   Return the previous version

VARIABLES:  Output    $$VER
                        This is a 5 piece string containing:

                            1   Coding System (pointer to file 80.4)
                            2   Coding System Nomenclature
                            3   Coding System Abbreviation
                            4   File Number containing the Coding System
                            5   Date Coding System was Implemented or
                           -1   on error

COMPONENT:  Y(ROOT,IEN,CDT,FMT)
            Given the global root or file number, the Internal Entry
            Number (IEN) and a date, this API will return the equivalent
            of FileMan's output variable Y without having to perform the
            lookup.

VARIABLES:  Input     ROOT
                        This is either an ICD global root or file number.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number in the file
                        identified by the input parameter ROOT.

VARIABLES:  Input     CDT
                        This is a code set versioning date used to
                        returned versioned (date sensitive) data from the
                        ICD files.

VARIABLES:  Input     FMT
                        This is a output format flag (optional, default
                        0).

                          0  Return standard Fileman Y - IEN ^ CODE
                          1  Return Expanded Y as if DIC(0) contained a
                        "Z"

VARIABLES:  Output    Y
                        Input parameter FMT = 0 or 1

                          Y = IEN ^ Code

                        Input parameter FMT = 1

                          FileMan Compliant

                            Y(0)     =  0 Node    (aka Code)
                            Y(0,0)   =  .01 Field (aka Code)
```

```
                         Non-FileMan Compliant

                           Y(0,1)  =  $$ICDDX or $$ICDOP
                           Y(0,2)  =  Versioned Long Description

COMPONENT:  TOKEN(TEXT,ROOT,SYS,ARY)
            This API parses text into words/tokens and saves them in a
            local array for later processing.  Words and tokens not found
            in the file and coding system identified by the input
            parameters are not included in the output array.

VARIABLES:  Input     TEXT
                        This is a text string to parse.

VARIABLES:  Input     ROOT
                        This is a global root or file number (required)

                           ^ICD9(  or  80
                           ^ICD0(  or  80.1

VARIABLES:  Input     SYS
                        This is the coding system  (Required)

                            1  or  ICD  or  ICD-9-CM
                            2  or  ICP  or  ICD-9 Proc
                           30  or  10D  or  ICD-10-CM
                           31  or  10P  or  ICD-10-PCS

VARIABLES:  Both      .ARY
                        This is the output array passed by reference that
                        contains a list of words parsed from the input
                        string X and arranged by frequency of use

                           ARY(0)=# of words
                           ARY(#)=word

                        The least frequently used word will be ARY(1) and
                        the most frequently used word will be ARY($O(ARY("
                        "),-1)).  Words not found in the file and coding
                        system will not appear in the parsed array.

COMPONENT:  $$WORD(WORD,ROOT,SYS)
            This API determines if a word is found in a file or a coding
            system identified by the input parameters

VARIABLES:  Input     WORD
                        This is a single word.

VARIABLES:  Input     ROOT
                        This is a global root or file number (optional)

                           ^ICD9(  or  80
                           ^ICD0(  or  80.1

VARIABLES:  Input     SYS
                        This is the coding system (Optional)
```

```
                             1  or  ICD  or  ICD-9-CM
                             2  or  ICP  or  ICD-9 Proc
                            30  or  10D  or  ICD-10-CM
                            31  or  10P  or  ICD-10-PCS

VARIABLES:  Output    $$WORD
                        This is a Boolean value indicating if a word is
                        contained in a set (file or system).

                          1 = Word was found

                              If ROOT is not supplied, the word was
                              found in either file 80 or 80.1

                              If SYS is not supplied, the word was
                              found in the file designated by ROOT
                              in any coding system in the file

                              If both ROOT and SYS are supplied,
                              the word was found in the specified
                              coding system

                          0 = Word was not found

COMPONENT:  $$ICDIDS(FILE,CODE,ARY)
            This API returns an array of Diagnosis or Procedure code
            Identifiers used in the calculation of DRG groups.

VARIABLES:  Input     FILE
                        This is the ICD file number used to retrieve the
                        identifier codes (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     CODE
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required).

VARIABLES:  Both      ARY
                        This is a local array of identifiers found for the
                        code identified input parameters FILE and CODE.

                               ARY(<identifier>)=""

VARIABLES:  Output    $$ICDIDS
                        This is the number of identifiers found for the
                        code identified by the input parameters FILE and
                        CODE, or upon error:

                            -1^error message

COMPONENT:  $$ICDID(FILE,ID,CODE)
            This API checks if a specified ICD identifier exist for a code
            identified by the input parameters FILE and CODE.

VARIABLES:  Input     FILE
```

```
                        This is the ICD file number used to retrieve the
                        identifier codes (Required):

                            80   = ICD Diagnosis file
                            80.1 = ICD Operation/Procedure file

VARIABLES:  Input     ID
                        This is a Diagnosis or Procedure code identifier
                        (required)

VARIABLES:  Input     CODE
                        This is an Internal Entry Number (IEN) in the file
                        specified (Required).

VARIABLES:  Output    $$ICDID
                        Boolean value

                           1 if identifier was found for code
                           0 if identifier was not found for code

                           or upon error -1^error message

COMPONENT:  $$ISOWNCC(IEN,CDT,FMT)
            This API returns the Complication/Comorbidity (CC) value for
            an ICD Diagnosis code when the primary diagnosis is its own
            CC/MCC.

VARIABLES:  Input     IEN
                        This is the Internal Entry Number (IEN) of the ICD
                        Diagnosis file #80.

VARIABLES:  Input     CDT
                        Date to use to extract CC (default TODAY)

VARIABLES:  Input     FMT
                        This is a flag that controls the output format:

                           0 = CC only (default)
                           1 = CC ^ Effective Date

VARIABLES:  Output    $$ISOWNCC
                        Complication/Comorbidity (CC)

                           DX is Own CC  Format  Output
                           ------------  ------  -------------------------
                                Yes        0     CC Value
                                Yes        1     CC Value ^ Effective Date
                                No        N/A    0 (zero)

                           or upon error -1^error message

COMPONENT:  $$ICDRGCC(DRG,CDT)
            This API returns the CC/MCC flag from DRG file #80.2

VARIABLES:  Input     DRG
                        This is an Internal Entry Number for the DRG file
                        80.2 (required)
```

```
VARIABLES:  Input     CDT
                        Date to use to extract CC/MCC flag (default TODAY)

VARIABLES:  Output    $$ICDRGCC
                        This is the Complication/Comorbidity/Major CC flag

                            0   No CC or MCC
                            1   CC present
                            2   MCC present
                            3   CC or MCC present

                        or upon error -1^error message

COMPONENT:  $$DRG(CODE,CDT)
            This API returns basic information about a DRG.

VARIABLES:  Input     CODE
                        DRG code, internal or external format (Required)

VARIABLES:  Input     CDT
                        Date to check status for, FileMan format (default
                        = TODAY)

                           If CDT < 10/1/1978, use 10/1/1978
                           If CDT > DT, validate with In/Activation Dates
                           If CDT is year only, use first of the year
                           If CDT is year and month, use first of the
                        month

VARIABLES:  Output    $$DRG
                        Returns an 22 piece string delimited by the
                        up-arrow (^) the pieces are:

                           1  DRG name (field #.01)
                           2  Weight (field #2)
                           3  Low Trim (days) (field #3)
                           4  High Trim (days) (field #4)
                           5  MDC (field #5)
                           6  Surgery Flag (field #.06)
                           7  <null>
                           8  Avg Length of Stay (days) (field 10)
                           9  Local Low Trim Days (field #11)
                          10  Local High Trim Days (field #12)
                          11  <null>
                          12  Local Breakeven (field #13)
                          13  Activation Date (.01 field, 66 multiple)
                          14  Status (.03 field, 66 multiple)
                          15  Inactivation Date (.01 field, 66 multiple)
                          16  Effective date (.01 field, 66 multiple)
                          17  Internal Entry Number (IEN)
                          18  Effective date (.01 field, 66 multiple)
                          19  Reference (field #900)
                          20  Weight (Non Affil) (field #7)
                          21  Weight (Int Affil) (field #7.5)
                          22  Message
```

```
                           or

                          -1^Error Description

COMPONENT:  $$DRGD(CODE,ARY,CDT)
            Returns an unformatted DRG Description.

VARIABLES:  Input     CODE
                        ICD Code, Internal or External Format (required)

VARIABLES:  Both      ARY
                        Input:   Name of Output Array for description

                          e.g. "ABC" or "ABC("TEST")"

                          Default = ^TMP("DRGD",$J)

                        Output:  Description in array

                           @ARY(1:n) - Description (lines 1-n)
                           @ARY(n+1) - Blank
                           @ARY(n+1) - Warning Message

                             or

                           -1^Error Description

                        NOTE:

                           User must initialize ^TMP("DRGD",$J)
                           if used.  The data is place in the
                           array unformatted, exactly as it is in
                           the DESCRIPTION multiple (sub-files
                           #80.068 or #80.168)

                        SEE ALSO:

                           $$DRGDES^ICDEX(IEN,CDT,.ARY,LENGTH) to
                           retrieve the description formatted into
                           string lengths specified by input
                           parameter for length.

VARIABLES:  Input     CDT
                        Date to screen against (default = TODAY)

                           If CDT < 10/1/1978, use 10/1/1978
                           If CDT > DT, use DT
                           If CDT = year only, use 01/01/yyyy
                           If CDT = year & month, use mm/01/yyyy

VARIABLES:  Output    $$DRGD
                        This is the number of lines in description output
                        array.

COMPONENT:  $$DRGDES(IEN,CDT,ARY,LEN)
            This API returns the DRG Description formatted into string
            lengths specified by the calling application.
```

```
VARIABLES:  Input     IEN
                        Internal Entry Number of DRG file 80.2

VARIABLES:  Input     CDT
                        Date to screen against (default = TODAY)

VARIABLES:  Both      .ARY
                        This is a local array passed by reference
                        containing the DRG description.  The text is
                        formatted into string lengths specified by the LEN
                        input parameter.

VARIABLES:  Input     LEN
                        Length of line of the description in the output
                        array

                           Missing        Defaults to 79
                           Less than 25   Defaults to 25

VARIABLES:  Output    $$DRGDES
                        This is the number of lines in description output
                        array.

COMPONENT:  $$DRGN(CODE)
            This API returns the Internal Entry Number (IEN) of the DRG
            specified by a DRG code.

VARIABLES:  Input     CODE
                        This is a DRG code.

VARIABLES:  Output    $$DRGN
                        This is the IEN of the DRG code specified.

COMPONENT:  $$EFD(X)
            This is an interactive API that will prompt the user for an
            effective date in a range of dates.

VARIABLES:  Output    $$EFD
                        This is a 3 piece "^" delimited string containing
                        an effective date in both internal and external
                        formats:

                           1   Date Fileman format          nnnnnnn
                           2   Date External Short Format   mm/dd/yyyy
                           3   Date External Long Format    Mmm dd, yyyy

                        or
                           "^^" if the user enters double up-arrows
                           "^"  if the user enters a single up-arrow
                           ""   if the user times out

                        The earliest possible date is Oct 1, 1978, the
                        initial ICD implementation date in the VA.

                        If today's date is less than the implementation
                        date of ICD-10, then the latest possible date is 3
```

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                      years from the ICD-10 implementation date.

                      If today's date is greater than the implementation
                      date of ICD-10, then the latest possible date is 3
                      years from today's date.

COMPONENT:  $$GETDATE(IEN)
            This API calculates the Effective Date to use retrieving
            ICD/DRG data based on a patient's treatment.

VARIABLES:  Input     IEN
                      This is an Internal Entry Number of the PTF file
                      #45

VARIABLES:  Output    $$GETDATE
                      This is the correct "EFFECTIVE DATE" for a patient
                      to be used retrieving DRG/ICD/CPT data (default
                      TODAY)

                      "EFFECTIVE DATE" Derived from:

                        Census Date      ^DGPT          0;13
                        Discharge Date   ^DG(45.86      0;1
                        Surgery Date     ^DGPT(D0,"S"   0;1
                        Movement Date    ^DGPT(D0,"M"   0;10
                        Default          $$NOW^XLFDT

COMPONENT:  $$IA(FILE,IEN)
            This API returns an codes Initial Activation Date based on a
            file number and the codes Internal Entry Number.  The Initial
            Activation date may be different from the Last Activation date
            (see $$LA) if the code was re-used.

VARIABLES:  Input     FILE
                      This is a Global Root or File Number for either
                      the ICD Diagnosis or ICD Procedure files
                      (Required)

VARIABLES:  Input     IEN
                      This is an Internal Entry Number (IEN) in the
                      specified file (Required)

VARIABLES:  Output    $$IA
                      Initial Activation Date

                      OR

                      -1 ^ Error Message

COMPONENT:  $$IDSTR(FILE,IEN)
            This API returns a string of ICD identifier associated with
            either an ICD Diagnosis or ICD Procedure code (supports legacy
            APIs)

VARIABLES:  Input     FILE
                      File Number or root (required)
```

```
                            80 or ^ICD9     = File #80
                            80.1 or ^ICD0   = File #80.1

VARIABLES:  Input     IEN
                        This is a Diagnosis/Procedure code IEN (required)

VARIABLES:  Output    $$IDSTR
                        This is a string of Identifiers delimited by a
                        semi-colon

                           ID;ID;ID

COMPONENT:  $$ISVALID(FILE,IEN,CDT)
            This API determine is an ICD code is valid.

VARIABLES:  Input     FILE
                        This is a file number or global root for either
                        the ICD Diagnosis file or the ICD Procedure file

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the file
                        specified.

VARIABLES:  Input     CDT
                        This is the date to use to determine if the code
                        is valid for date (default TODAY)

VARIABLES:  Output    $$ISVALID
                        This is a Boolean value

                           1 if the code is valid
                           0 if the code is not valid

COMPONENT:  $$PDXE(IEN)
            This API returns the Primary Diagnosis Exclusion Code.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) for the ICD
                        Diagnosis file #80

VARIABLES:  Output    $$PDXE
                        This is a pointer to DRG CC Exclusions file #82.13

COMPONENT:  $$REF(IEN,CDT)
            This API returns the name of the DRG Reference Table.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) of the DRG
                        file #80.2

VARIABLES:  Input     CDT
                        Effective date to use (default TODAY)

VARIABLES:  Output    $$REF
                        Table reference associated with a DRG entry or
                        null if not found
```

```
COMPONENT:  $$VCCP(IEN,CDT,FMT)
            This API returns the CC Primary Flag for a diagnosis.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) in the ICD
                        Diagnosis file 80 (required)

VARIABLES:  Input     CDT
                        This is the date to use to Extract CC Primary Flag
                        (default TODAY)

VARIABLES:  Input     FMT
                        Is is a flag to determine the output format
                        (optional):

                         0 = CC Primary Flag only (default)
                         1 = CC Prim Flag^Effective Date^Value

VARIABLES:  Output    $$VCCP
                        This the CC Primary Flag in one of two formats:

                          CC Primary Flag only (FMT=0)
                          CC Primary Flag^Effective Date^Value  (FMT=1)

COMPONENT:  $$DRGW(IEN)
            This API returns the DRG Weighted Work Unit (WWU)

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) of the DRG
                        file 80.2

VARIABLES:  Output    $$DRGW
                        This is the Weighted Work Unit (WWU) for a DRG

COMPONENT:  $$DRGC(IEN)
            This API returns the DRG code.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number (IEN) of the DRG
                        file 80.2

VARIABLES:  Output    $$DRGC
                        This is a DRG Code (field .01)

COMPONENT:  $$MDCN(IEN)
            This API returns the name of a Major Diagnostic Category (MDC)

VARIABLES:  Input     IEN
                        This is the Internal Entry Number (IEN) for file
                        80.3

VARIABLES:  Output    $$MDCN
                        This is a Major Diagnostic Category Name

COMPONENT:  $$HDR(FILE)
            This API returns the header node of either file 80 or 80.1.
```

```
VARIABLES:  Input     FILE
                        This is a File Number or Global Root

                           80    or  ^ICD9(
                           80.1  or  ^ICD0(

VARIABLES:  Output    $$HDR
                        This is the header node of either the ICD
                        Diagnosis file 80 or the Operation Procedure file
                        80.1

                          ^ICD9(0)
                          ^ICD0(0)

COMPONENT:  $$IEN(CODE,ROOT,SYS)
            This API returns an internal entry number for a code based on
            file/global root and coding system.

            This API is similar to $$CODEABA^ICDEX except it will also
            return IENs for codes excluded from lookup and VA Local Codes.
            Its primary purpose to to support file maintenance.  Use with
            great caution.

            DO NOT USE in any application that requires codes and text to
            be versioned (date sensitive).

VARIABLES:  Input     CODE
                        This is an ICD Diagnosis or Procedure Code from
                        either the ICD-9 or ICD-10 coding systems
                        (required)

VARIABLES:  Input     ROOT
                        This is a file number or global root (optional)

                           ^ICD9( or 80
                           ^ICD0( or 80.1

VARIABLES:  Input     SYS
                        This is a coding system (optional)

                          1 = ICD-9 Diagnosis
                          2 = ICD-9 Procedure
                         30 = ICD-10 Diagnosis
                         31 = ICD-10 Procedure

VARIABLES:  Output    $$IEN
                        Returns the Internal Entry Number (IEN) for a CODE
                        or -1 if not found

COMPONENT:  $$SDH(FILE,IEN,ARY)
            This API returns a history of Short Description changes by
            date.

VARIABLES:  Input     FILE
                        This is an ICD file number:

                            80   = ICD Diagnosis file
```

80.1 = ICD Operation/Procedure file

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the file specified.

VARIABLES: Input .ARY
This is a local array name passed by reference that will contain the code's short description history.

VARIABLES: Output $$SDH
This is a three piece "^" delimited string containing:

1 The number of short descriptions found
2 The earliest date found
3 The latest date found

VARIABLES: Output ARY
This is a local array containing a history of Short Descriptions by date:

ARY(0)= # ^ Earliest Date ^ Latest Date
ARY(DATE)=Long Description

COMPONENT: $$LDH(FILE,IEN,ARY)
This API returns a history of Long Description changes by date.

VARIABLES: Input FILE
This is an ICD file number:

80   = ICD Diagnosis file
80.1 = ICD Operation/Procedure file

VARIABLES: Input IEN
This is an Internal Entry Number (IEN) in the file specified.

VARIABLES: Input .ARY
This is a local array name passed by reference that will contain the code's long description history.

VARIABLES: Output $$LDH
This is a three piece "^" delimited string containing:

1 The number of long descriptions found
2 The earliest date found
3 The latest date found

OR -1 ^ Error Message

VARIABLES: Output ARY
This is a local array containing a history of Long

```
                        Descriptions by date:

                           ARY(0)= # ^ Earliest Date ^ Latest Date
                           ARY(DATE)=Long Description

COMPONENT:  $$POAE(IEN)
            This API checks to see if a Diagnosis Code is exempt from
            Present on Admission (Added in ICD*18.0*67)

VARIABLES:  Input     IEN
                        Internal Entry Number for file 80

VARIABLES:  Output    $$POAE
                        Boolean value

                        0  No, Diagnosis Code is not exempt for POA 1
                        Yes, Diagnosis Code is exempt for POA

COMPONENT:  $$HAC(IEN)
            This API checks to see if a Diagnosis Code is a Hospital
            Acquired Condition (Added in ICD*18.0*67)

VARIABLES:  Input     IEN
                        Internal Entry Number for file 80

VARIABLES:  Output    $$HAC
                        Boolean value

                        0  No, Diagnosis Code is not a Hospital
                           Acquired Condition 1  Yes, Diagnosis Code is a
                        Hospital
                           Acquired Condition

COMPONENT:  $$RDX(CODE,CDT)
            This API attempts to resolve a code fragment to a code.  It
            will return -1 with an error message if it fails.

VARIABLES:  Input     CODE
                        Code or Code Fragment (Required)

VARIABLES:  Input     CDT
                        Versioning Date (Optional, Default TODAY)

VARIABLES:  Output    $$RDX
                        ICD Diagnosis code from fragment if it can be
                        resolved.  -1 ^ error message if not resolved

                        Example:

                           Input                   Output
                           Fragment    Oct 1, 2014       Oct 1, 2015
                           --------    ------------------------------
                           E8310         E831.0            E83.10
                           311           311.              311.
                           A870          A87.0             A87.0
                           A0201         -1^Could not resolve code fragment
```

5749 Updating DD 'VR' Nodes

```
  CUSTODIAL PACKAGE: VA FILEMAN
SUBSCRIBING PACKAGE: LEXICON UTILITY
   The Lexicon needs to be able to update the DD "VR"
   nodes during data updates.  The Lexicon exports data
   in the export global ^LEXM.  This export global is
   created by comparing the development account with a
   gold account and recording the changes in ^LEXM in
   the form of executable SET and KILL statements.  Also
   recorded are the DD "VR  nodes.

      Example of export global for patch LEX*2.0*80 for
      file 757.11:

         ^LEXM(757.11,4)=S ^DD(757.11,0,"VR")="2.0"
         ^LEXM(757.11,5)=S ^DD(757.11,0,"VRPK")="LEX"
         ^LEXM(757.11,6)=S ^DD(757.11,0,"VRRV")="80^3131001"

      Example of export global for patch ICD*18.0*57 for
      file 80:

         ^LEXM(80,5391580)=S ^DD(80,0,"VR")="18.0"
         ^LEXM(80,5391581)=S ^DD(80,0,"VRPK")="ICD"
         ^LEXM(80,5391582)=S ^DD(80,0,"VRRV")="57^3131001"

   Data installation is done by $ORDERing through the
   ^LEXM export global and executing the MUMPS code
   found in the global.  When the above export global is
   installed at a site, the version number for file
   757.11 is updated to 80 (for LEX*2.0*80) and given
   the effective date of the the ICD-10 implementation
   date.  The effective date is not the date released,
   it is the date that the data becomes effective, and
   in this case it is the date the ICD-10 data is
   effective.

   This activity only occurs during the post-install of
   an ICD, CPT or Lexicon KIDS Installation containing
   data.  It is this method of exporting only the
   changes in a series of SET and KILL statements that
   allows for the distribution of large quantities of
   data without forcing users off the system.

           USAGE: Private             ENTERED: NOV 30,2011
          STATUS: Active              EXPIRES:
        DURATION: Till Otherwise Agr  VERSION:
            FILE:   ROOT: DD(
     DESCRIPTION:   TYPE: File
    ^DD(FILE,0,'VR')
    ^DD(FILE,0,'VRPK')
    ^DD(FILE,0,'VRRV')

    ROUTINE:
```

5755 ICD CODING SYSTEMS

```
  CUSTODIAL PACKAGE: DRG GROUPER
SUBSCRIBING PACKAGE: LEXICON UTILITY
              USAGE: Private             ENTERED: DEC 24,2011
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 80.4                   ROOT: ICDS(
        DESCRIPTION:   TYPE: File
   Lexicon Utility has all privileges as though it were the custodial
   package.
```

17.2 Lexicon as a Custodian

457 Lexicon Expressions v 1.0 - file #757.01

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: APR 26,1994
             STATUS: Active              EXPIRES:
           DURATION: Next Version        VERSION: 1.0
               FILE: 757.01                 ROOT: GMP(757.01,
        DESCRIPTION:                        TYPE: File
   The Clinical Lexicon Utility will maintain static internal entry numbers
   (IENs) for the Expression file (#757.01).  As a result, this file may be
   pointed to to retrieve the Display Text (.01) for both current Expressions
   and formerly used (deleted) Expressions.
     ^GMP(757.01,D0,0)
      .01      DISPLAY TEXT         0;1      Direct Global Read & w
                                             The Display Text contained in
                                             the Clinical Lexicon is the
                                             text which will be used in all
                                             display/print routines.
```

1511 Lexicon Utilities v 1.0 - GMPTU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: AUTOMATED INFO COLLECTION SYS
              USAGE: Private             ENTERED: MAR  8,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The Automated Information Collection System has the ability to print lists
   of terms based on the Clinical Lexicon on Encounter Forms.  When the forms
   are scanned and data is passed the PCE, the ICD9 diagnosis code associated
   with the term is required to populate the Purpose of Visit.  This
   agreement is to allow AICS to use the call ICDONE^GMPTU (and its
   successor) ICDONE^LEXU to determine the correct, or best ICD9 Diagnosis
   code associated with the selected term. Input variable is the pointer to
   the clinical lexicon entry in file 757.01.  Output is the ICD9 code, or
   null if none is found.  This will be coded in such a way as when Clinical
```

Lexicon converts to the LEX namespace that no changes will be required.

```
  ROUTINE: GMPTU
COMPONENT:  ICDONE
VARIABLES:  INPUT  Type: Input
                             The input to this function is the pointer
                             to the Clinical Lexicon file (757.01) as
                             the only parameter.  This value is
                             retrieved for other   call to the
                             clinical lexicon.

            OUTPUT  Type: Output
                             The function returns the ICD9 Diagnosis
                             most appropriate for the term, or null if
                             none exists.
               Returns the best ICD9 code to associate with a clinical
               lexicon entry.
```

1571 Lexicon Expressions v 2.0 - file 757.01

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: AUG  7,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE: 757.01                 ROOT: LEX(757.01,
        DESCRIPTION:                        TYPE: File
   The Lexicon Utility (version 2.0 and greater) will maintain static
   internal entry numbers (IENs) for the Expression file (#757.01).  As a
   result, this file may be pointed to to retrieve the Display Text (.01) for
   both current Expressions and deactivated Expressions (Deactivation Flag
   757.01;9 1;5 set to 1).  This agreement is a follow-on to DBIA 457
   (version 1.0) and is re-issued to include the package name, namespace and
   global root changes occurring in version 2.0.  This is not an amendment to
   457.

                             Version 1.0               Version 2.0

   Package name              Clinical Lexicon Utility   Lexicon Utility
   Namespace                 GMPT                       LEX Expression
   File Global Root   ^GMP(757.01,              ^LEX(757.01,
     ^LEX(757.01,D0,0)
       .01      Display Text         0;1      Direct Global Read & w
                                              This Display Text contained in
                                              the Lexicon Utility is the text
                                              which will be used in all
                                              display/print routines.
```

1573 Lexicon Utilities v 2.0 – LEXU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: AUG  7,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   LEXU is a utility routine for the Lexicon Utility which contains functions
   useful in retrieving classification code(s) for a term.  This agreement is
   a follow-on to DBIA 10148 (version 1.0) and is re-issued to include the
   package name, namespace, routine name and global root changes occurring in
   version 2.0.  This is not an amendment to 10148.

     ROUTINE: LEXU
   COMPONENT:  $$ICDONE(IEN,DATE)
   VARIABLES:  IEN  Type: Input
                        Internal Entry Number in the Expression
                        file ^LEX(757.01).
               DATE  Type: Input
                        This is a date in Fileman format used to
                        check if a code is active or inactive on
                        a specified date.  If not supplied, it
                        will default to TODAY.
                  Returns either a single active ICD-9 code linked to the
                  Lexicon expression or Null if no ICD-9 code is found.
   COMPONENT:  $$ICD(IEN,DATE)
   VARIABLES:  IEN  Type: Input
                        Internal Entry Number in the Expression
                        file ^LEX(757.01).
               DATE  Type: Input
                        This is a date in Fileman format used to
                        check if a code is active or inactive on
                        a specified date.  If not supplied, it
                        will default to TODAY.
                  Returns either a string of active ICD-9 codes linked to an
                  expression (separated by semicolon, i.e., ICD;ICD;ICD) or
                  Null if no ICD-9 codes are found.
   COMPONENT:  $$CPTONE(IEN,DATE)
   VARIABLES:  IEN  Type: Input
                        Internal Entry Number in the Expression
                        file ^LEX(757.01).
               DATE  Type: Input
                        This is a date in Fileman format used to
                        check if a code is active or inactive on
                        a specified date.  If not supplied, it
                        will default to TODAY.
                  Returns either a single active CPT-4 code linked to the
                  Lexicon expression or Null if no CPT-4 code is found.
   COMPONENT:  $$DSMONE(IEN)
   VARIABLES:  IEN  Type: Input
                        Internal Entry Number in the Expression
                        file ^LEX(757.01).
                  Returns either a single DSM-IV code linked to the Lexicon
                  expression or Null if no DSM-IV code is found.
   COMPONENT:  $$CPCONE(IEN,DATE)
   VARIABLES:  IEN  Type: Input
                        Internal Entry Number in the Expressions
                        file ^LEX(757.01).
               DATE  Type: Input
                        This is a date in Fileman format used to
                        check if a code is active or inactive on
                        a specified date.  If not supplied, it
```

```
                             will default to TODAY.
                  Returns either a single active HCPCS code linked to the
                  Lexicon expression or Null if no HCPCS codes exist.  HCPCS
                  stands for Healthcare Financing Administration (HCFA)
                  Common Procedure Coding System.
```

1597 Expression Information – LEXA

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: AUG 18,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   LEXA is used by the Lexicon Utility to perform a silent look-up and return
   an array of the expression found.

     ROUTINE: LEXA
   COMPONENT:  INFO(IEN,DATE)
   VARIABLES:  IEN  Type: Input
                                 Internal Entry Number in the Expression
                                 file #757.01.
               LEX  Type: Output
                                 The local array LEX("SEL") contains the
                                 major concept, synonyms, lexical
                                 variants, associated codes (i.e., ICD,
                                 CPT, DSM, etc.), the expression
                                 definition (if one exists), the semantic
                                 class, the semantic type, and all VA
                                 classification sources.  See the Lexicon
                                 Utility's Technical Manual for a detailed
                                 description of this array.
               DATE  Type: Input
                                 This is a date in Fileman format used to
                                 check if a code is active or inactive on
                                 a specified date.  If not supplied, it
                                 will default to TODAY.  Active codes will
                                 be retrieved and displayed.
                  This entry point allows applications to retrieve
                  information about an expression without conducting a
                  search.
```

1599 LEXICON USER DEFAULTS - Filter - LEXDFL

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: PROBLEM LIST
              USAGE: Private             ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The entry point EN1^LEXDFL will be used to setup user default filter for
   conducting searches in the Lexicon Utility.  This entry point, along with
   EN1^LEXDCC, EN1^LEXDVO, EN1^LEXDCX and EN1^LEXDDS replaces ^GMPTDUSR used
   in verion 1.0 of the Clinical Lexicon Utility (see DBIA 339).
  ROUTINE: LEXDFL
COMPONENT:  EN1(LEXAP)
VARIABLES:  LEXAP  Type: Input
                                LEXAP is the Internal Entry Number of the
                                Subset Definition file (#757.2) where the
                                application definition is located.
               This entry point allows a single user to edit their default
               look-up filter for the Lexicon Utility.
```

1601 LEXICON USER DEFAULTS - Display - LEXDCC

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: PROBLEM LIST
              USAGE: Private             ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The entry point EN1^LEXDCC(LEXAP) will be used to setup user default
   display (classification codes) for conducting searches in the Lexicon
   Utility.  This entry point along with EN1^LEXDFL, EN1^LEXDVO, EN1^LEXDCX
   and EN1^LEXDDS replaces ^GMPTDUSR used in verion 1.0 of the Clinical
   Lexicon Utility (see DBIA 339).

     ROUTINE: LEXDCC
   COMPONENT:  EN1(LEXAP)
   VARIABLES:  LEXAP  Type: Input
                                   LEXAP is the Internal Entry Number of the
                                   Subset Definition file (#757.2) where the
                                   application definition is located.
                  This entry point allows a single user to edit their default
                  look-up display for the Lexicon Utility.
```

1603 LEXICON USER DEFAULTS – Vocabulary - LEXDVD

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: PROBLEM LIST
              USAGE: Private             ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The entry point EN1^LEXDVO will be used to setup user default vocabulary
   for conducting searches in the Lexicon Utility.  This entry point, along
   with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDCX and EN1^LEXDDS replaces ^GMPTDUSR
   used in version 1.0 of the Clinical Lexicon Utility (see DBIA 339).

     ROUTINE: LEXDVO
   COMPONENT:  EN1(LEXAP)
   VARIABLES:  LEXAP  Type: Input
                                   LEXAP is the Internal Entry Number of the
                                   Subset Definition file (#757.2) where the
                                   application definition is located.
                  This entry point allows a single user to edit their default
                  look-up vocabulary for the Lexicon Utility.
```

1605 LEXICON USER DEFAULTS - Shortcuts - LEXDCX

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: PROBLEM LIST
              USAGE: Private             ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The entry point EN1^LEXDCX will be used to setup user default shortcuts by
   context for conducting searches in the Lexicon Utility.  This entry point
   along with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDVO and EN1^LEXDDS replaces
   ^GMPTDUSR used in version 1.0 of the Clinical Lexicon Utility (see DBIA
   339).

     ROUTINE: LEXDCX
   COMPONENT:  EN1(LEXAP)
   VARIABLES:  LEXAP  Type: Input
                                    LEXAP is the Internal Entry Number of the
                                    Subset Definition file (#757.2) where the
                                    application definition is located.
                  This entry point allows a single user to edit their default
                  look-up shortcuts for the Lexicon Utility.
```

1607 LEXICON USER DEFAULTS - List - LEXDDS

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: PROBLEM LIST
              USAGE: Private             ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The entry point EN1^LEXDDS will be used to list user defaults for
   searching the Lexicon to a device (terminal or printer).  This entry point
   along with EN1^LEXDFL, EN1^LEXDCC, EN1^LEXDVO and EN1^LEXDCX replaces
   ^GMPTDUSR used in version 1.0 of the Clinical Lexicon Utility (see DBIA
   339).

     ROUTINE: LEXDDS
   COMPONENT:  EN1(LEXAP)
   VARIABLES:  LEXAP  Type: Input
                                    LEXAP is the Internal Entry Number of the
                                    Subset Definition file (#757.2) where the
                                    application definition is located.
                  This entry point allows a single user to list their Lexicon
                  Utility defaults to a device (terminal or printer).
```

1609 Lexicon Setup - LEXSET

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: AUG 19,1996
             STATUS: Active              EXPIRES:
```

```
        DURATION: Till Otherwise Agr  VERSION:
            FILE:                        ROOT:
     DESCRIPTION:                        TYPE: Routine
The Lexicon Utility uses LEXSET to setup search parameters based on
applications definitions, subset definitions and user defaults stored in
the Subsets Definition file (#757.2).  These search parameters are stored
in the global array ^TMP("LEXSCH",$J).

  ROUTINE: LEXSET
COMPONENT:  CONFIG(LEXNS,LEXSS,DATE)
VARIABLES:  LEXNS  Type: Input
                                 LEXNS is an application identifier
                                 (formerly namespace) which tells the
                                 setup routines which application
                                 definition in file 757.2 to use to
                                 retrieve application defaults (i.e.,
                                 global, display, filter, etc.)
                                 Acceptable values for LEXNS are found in
                                 file 757.2 in the "AN" index:

                                   ^LEXT(757.2,"AN",LEXNS)

            LEXSS  Type: Input
                                 LEXSS is a subset identifier which tells
                                 the setup routines which subset
                                 definition in file 757.2 to use to
                                 retrieve subset and user defaults (i.e.,
                                 global, display, filter, etc.).
                                 Acceptable values for LEXSS may be found
                                 in file 7 57.2 in either the "AA" or the
                                 "AB" indexes:

                                   ^LEXT(757.2,"AA",LEXSS)
                                   ^LEXT(757.2,"AB",LEXSS)

            TMP(LEXSCH  Type: Output
                                 ^TMP("LEXSCH",$J) is a global array used
                                 by the Lexicon Utility to control how a
                                 search of the Lexicon is to be conducted.
                                 It contains the following segments:

                                   APP    Application (from LEXNS)
                                   DIS    Display format
                                   FIL    Filter
                                   FLN    File Number
                                   GBL    Global (Fileman DIC)
                                   IDX    Index used during the search
                                   LEN    Length of list to display
                                   OVR    Overwrite User Defaults flag
                                   SCT    Shortcuts
                                   SVC    Service
                                   UNR    Unresolved Narrative flag
                                   USR    User (DUZ)
                                   VDT    Version Date Check (for
                                 classification codes)
                                   VOC    Vocabulary
```

```
                                    A detailed description of this global
                                    array may be found in the Lexicon
                                    Utility's Technical Manual.

               DATE  Type: Input
                                    This is a date in Fileman format used to
                                    check classification code codes to
                                    determine if they are active or inactive
                                    on the specified date.  If not supplied,
                                    it will default to TODAY.
                  This entry point may be used by other applications to setup
                  parameters for conducting a search of the Lexicon Utility.
```

1614 Lexicon Expressions for Codes - LEXCODE

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: AUG 20,1996
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   The Lexicon Utility uses the LEXCODE routine to extract expressions
   (terms) in the form of Fileman's output variable "Y" based on a
   classification code.

     ROUTINE: LEXCODE
   COMPONENT:  EN(LEXSO,DATE)
   VARIABLES:  LEXSO  Type: Input
                                    LEXSO is a classification code from one
                                    of several sources (i.e., ICD, CPT, DSM).
                                    A complete list of these sources can be
                                    found in the Lexicon Utility's Technical
                                    Manual.
               LEXS(SAB,#  Type: Output
                                    LEXS(SAB,#)=IEN^TERM is a local array
                                    containing references to expressions
                                    linked to the classification code.  SAB
                                    refers to the three-character source
                                    abbreviation of the classification system
                                    (i.e., ICD-9-CM = ICD).  A description of
                                    this array and a list of the source
                                    abbreviations can be found in the Lexicon
                                    Utility's Technical Manual.
               DATE  Type: Input
                                    This is a date in Fileman format used to
                                    check if a code is active or inactive on
                                    a specified date.  If not supplied, it
                                    will default to TODAY.
                  This entry point builds a local array containing
                  expressions linked to an active classification code.
```

2288 Lexicon Utilities – LEXU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
```

```
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: FEB  3,1998
             STATUS: Withdrawn           EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   LEXU is a utility routine for the Lexicon Utility which contains functions
   useful in retrieving classification codes for a term.  This agreement is
   an amendment to DBA #1573.

     ROUTINE: LEXU
   COMPONENT:  $$CPCONE(IEN)
   VARIABLES:  IEN  Type: Input
                                    Internal Entry Number in the Expressions
                                    file ^LEX(757.01).
                  Returns either a single HCPCS code linked to the Lexicon
                  expression or Null if no HCPCS codes exist.  HCPCS stands
                  for Healthcare Financing Administration (HCFA) Common
                  Procedure Coding System.
```

2950 Lexicon Lookup - LEXA

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: ORDER ENTRY/RESULTS REPORTING
              USAGE: Supported           ENTERED: APR 16,2003
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This entry point is silent and intended to support Graphical User
   Interface (GUI) development. The lookup returns an array of information on
   the expressions found. The lookup includes reordering the selection list
   with the most frequently used at the top, and places any exact match at
   the top of the list.

     ROUTINE: LEXA
   COMPONENT:  LOOK(LEXX,LEXAP,LEXLL,LEXSUB,DATE)
   VARIABLES:  LEXX  Type: Input
                                    Equivalent to Fileman's variable X and
                                    contains the text to search for.
               LEXAP  Type: Input
                                    This is the application identification
                                    and may be in the form of a name,
                                    namespace, or a pointer (Internal Entry
                                    Number - IEN) from an application
                                    definition in the Subset Definition
                                    file (#757.2).

                                    The default value for this parameter, if
                                    it is not supplied, is the one (1),
                                    pointing to the Lexicon application
                                    definition.

                                    Included in this application definition
                                    are a number of application defaults
```

which assist in searching the Lexicon. Application defaults included the global root, index, filter, display format, vocabulary, shortcuts, user default flag, overwrite user default flag, and the unresolved narrative flag. These are described in the Special Variable section of the Lexicon Utility Technical Manual.

At this time, there are six (6) application definitions.

Name	Namespace	IEN
Lexicon	LEX	1
Problem List	GMPL	4
ICD Diagnosis	ICD	12
CPT Procedures	CPT	13
Mental Health	DSM	14
ICD, CPT, and DSM	VAC	15

To conduct a search of the Lexicon using the application defaults for the Problem List, you may pass this parameter as:

Name   "PROBLEM LIST" – This form is not case sensitive, and can be found either the "B" or "C" index of file 757.2.

Namespace   "GMPL" - Namespace - This form is not case sensitive, and can be found in the "AN" index of file 757.2.

Pointer   4 - This form is numeric, and is an Internal Entry Number (IEN) of file 757.2.

LEXLL Type: Input

This is a numeric value which controls the returning list length in the local array LEX("LIST"). The default value for this parameter when not supplied is five (5).

LEXSUB Type: Input

This parameter represents the vocabulary subset to use during the search. These subsets are defined in the Subset Definition file (#757.2). This parameter may be in one of three forms. To use the "Nursing" subset you may pass the parameter as:

Name   "NURSING" - This form is not case sensitive and may be

```
                                            found in either the "B" or
                                            "C" index of file 757.2.

                               Mnemonic     "NUR" - This form is not case
                                            sensitive and the mnemonic may
                                            be found in either the "AA" or
                                            "AB" index of file 757.2.

                               Pointer      2 - This form is numeric, and
                                            is an Internal Entry Number
                                            (IEN) of file 757.2.

              TMP  Type: Output
                               ^TMP("LEXFND",$J,<freq>,<ien>)

                               This global array contains all of the
                               entries found during the search.  The
                               <freq> is a negative number based on the
                               frequency of use for a given term.  <ien>
                               is the internal entry number in the
                               Lexicon Expression file (757.01).


                               ^TMP("LEXHIT",$J,<seq>)

                               This global array contains the entries
                               reviewed by the user. The Lexicon Utility
                               reorders the list based on frequency of
                               use and assigns a sequence number
                               representing where on the list this entry
                               is located.

              LEX  Type: Output
                               LEX("LIST")

                               This local array contains only those
                               entries on the list which are currently
                               being reviewed by the user.  The third
                               parameter to the look-up defines the
                               length of this list.
              DATE  Type: Input
                               This is a date in Fileman format used to
                               check if a code is active or inactive on
                               a specified date.  If not supplied, it
                               will default to TODAY.  Only active codes
                               can be displayed and returned during a
                               lookup.
```

4083 Lexicon Code Status - LEXSRC2

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: APR 14,2003
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
```

```
     DESCRIPTION:                        TYPE: Routine

  ROUTINE: LEXSRC2
COMPONENT:  $$STATCHK(CODE,DATE,.LEX,SAB)
VARIABLES:  CODE  Type: Input
                                 This is a code taken from a
                                 classification system contained in the
                                 Lexicon (i.e., ICD, CPT, etc.)
            DATE  Type: Input
                                 This is the date used to determine if a
                                 code was either active or inactive on a
                                 specific date.  If not supplied, TODAY
                                 will be used as the date.
            .LEX  Type: Input
                                 (Optional) This is a local array, passed
                                 by reference.  When passed it will return
                                 information about the code.
            SAB  Type: Input
                                 (Optional) This is the source of the
                                 code.  It is either a pointer to the
                                 CODING SYSTEMS file 757.03 or the source
                                 abbreviation expressed as the first 3
                                 characters of the source in file 757.03.
            $$STATCHK  Type: Output
                                 This is a two piece "^" delimited string
                                 in the following formats:

            RETURNS                    INDICATES
            -----------------          ---------------------------------
            1 ^ IEN ^ Date             The code is active on the date
                                       returned and stored in
                                       ^LEX(757.02,IEN,0)

            0 ^ IEN ^ Date             The code is inactive on the date
                                       returned and stored in
                                       ^LEX(757.02,IEN,0)

            0 ^ -1                     Code is not found in the Lexicon

            LEX  Type: Output
                                 (Optional) This is a local array passed
                                 by reference.  If passed it will contain
                                 information about the code in the
                                 following formatted subscripts:

                                 LEX(0) = <ien 757.02> ^ <code>
                                           2-piece String containing the
                                 IEN of the code and the code

                                 LEX(1) = <ien 757.01> ^ <expression>
                                           2-piece String containing the
                                 IEN of the code's expression
                                           and the expression

                                 LEX(2) = <ien 757.03> ^ <abbr> ^ <nomen>
                                 ^ <name>
                                           4-peice String containing the
```

```
                              IEN of the code's classification
                                        system, the source
                              abbreviation, Nomenclature and the name
                              of
                                        the classification system
                  This entry point is used to check the activation status of
                  a code in the Lexicon Utility.
```

4306 LEXICAL SERVICES UPDATE - Protocol

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: DRG GROUPER
                        The subscribing protocol is:  ICD CODE UPDATE EVENT
                     CPT/HCPCS CODES
                        The subscribing protocol is:  ICPT CODE UPDATE EVENT
              USAGE: Controlled Subscri  ENTERED: DEC  3,2003
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Other
   This protocol is used to notify other applications and processes when the
   Lexicon Utility or the Lexicon Change file is updated.

   The Lexicon is updated using a temporary maintenance global, ^LEXM.  This
   global is processed by the routine LEXXGI.  Once processed, this protocol
   is triggered and the global ^LEXM is deleted.

   Required Variable LEXSCHG Array contains a listing of those Lexicon Files
   (#757 - 757.41) that were updated as a result of a recent install.  In the
   case of the CHANGE LOG (file #757.9), new changes to SDO controlled files
   will be indicated by file number and the internal entry number to the
   CHANGE LOG.

   The variable LEXSCHG is created while processing the Lexicon Maintenance
   global ^LEXM.  It will indicate what files were updated.

      Example:

            LEXSCHG(757,0)=""
            LEXSCHG(757.001,0)=""
            LEXSCHG(757.01,0)=""
            LEXSCHG(757.02,0)=""
            LEXSCHG(757.1,0)=""
            LEXSCHG(757.11,0)=""
            LEXSCHG(757.9,0)=""
            LEXSCHG(757.9,2)=80
            LEXSCHG(757.9,3)=80.1
            LEXSCHG(757.9,4)=81
            LEXSCHG(757.9,"B",80,2)=""
            LEXSCHG(757.9,"B",80.1,3)=""
            LEXSCHG(757.9,"B",81,4)=""

      If ICD-9-CM and/or CPT-4 changes are included in the ^LEXM
      global, then the following entries will be found in the
      local array LEXSCHG:
           LEXSCHG(80,0)=""
           LEXSCHG(80.1,0)=""
           LEXSCHG(81,0)=""
```

4912 Concept Data for Code – LEXTRAN

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: OCT  5,2006
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This API will return an array of data for a given code, code source,
   optional date, and optional return array name.  The data returned will
   include:
         code
         hierarchy or subset (if available)
         version (if available)
         legacy code (if available)
         code status
         fully specified name (if available)
         preferred term
         any applicable synonyms

   If any of the data in the passed parameters data is incorrect or
   unrecognizable, the API will return an error message indicating the nature
   of the error. If no date is specified, then the date will default to the
   current system date.  This API was developed specifically for the SNOMED
   CT code system in support of the LDSI project, but is applicable to any
   code system.


     ROUTINE: LEXTRAN
   COMPONENT:  $$CODE(CODE,SOURCE,DATE,ARRAY)
   VARIABLES:  CODE  Type: Input
                                 This is a code of a classification system
                                 that is stored in the Lexicon.
                                 Classification systems include SNOMED CT,
                                 ICD, CPT, HCPCS, etc.

               SOURCE  Type: Input
                                 This is the mnemonic for a code system
                                 (mandatory). The allowable code system
                                 mnemonics are those that exist in the "B"
                                 index of the coding systems file (757.03)
                                 This is code system source abbreviation
                                 Lexicon.
               DATE  Type: Input
                                 This is the effective date; the default
                                 if no date is specified is the current
                                 system date (optional).
               ARRAY  Type: Both
                                 This is the name of the output array. The
                                 default, if no array name is specified,
                                 is 'LEX' (optional) The format of the
                                 output is as follows:
                                         Output

                                           if call finds an active code
                                 for the source
                                             "1^LEXCODE"
                                             LEX     -   an array
                                 containing information about the code
                                             LEX(0)  -   a five piece
                                 string:
                                                         1. code
                                                         2. hierarchy
                                                         3. version
                                                         4. legacy code
                                                         5. code status
                                             LEX("F")    fully specified
                                 name
                                             LEX("P")    preferred term
                                             LEX("S",n)  synonyms (n is
                                 the nth synonym)

                                           if call cannot find specified
                                 code on file
                                             "-2^"_LEXSCNM_" code
                                 "_LEXCODE_" not on file"
                                             where LEXSCNM is the source
                                 name
                                                   LEXCODE is the code

                                           if call finds an inactive code
                                 for the source
                                             "-4^"_LEXSCNM_" code
                                 "_LEXCODE_" not active for "_LEXVDT
                                             LEX    - an array containing
                                 information about the code
                                             LEX(0) -  a five piece
                                 string:
                                                       1. code
                                                       2. hierarchy
                                                       3. version
                                                       4. legacy code
                                                       5. code status

                                           otherwise
                                             "-1^error text"

                                           example of LEX array:

                               LEX(0)="67922002^Substance^20050701^T-
C2500^1"
                                           LEX("F")="Serum (Substance)"
                                           LEX("P")="Serum"
```

4913 Concept Data for Text - LEXTRAN

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: OCT  5,2006
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This API will return an array of data for a given text, optional code
   source, optional date, optional subset, and optional return array name.
   The API will display a pick list based on the parameters passed and allow
   a user to select an item from the list. The API will then return the array
   for the item selected.  The data returned will include:
         code
         hierarchy or subset (if available)
         version (if available)
         legacy code (if available)
         code status
         fully specified name (if available)
         preferred term
         any applicable synonyms

   If any of the data in the ‘passed’ parameters data is incorrect or
   unrecognizable, the API will return an error message indicating the nature
   of the error. If no date is specified, then the date will default to the
   current system date.  This API was developed specifically for the SNOMED
   CT code system in support of the LDSI project, but is applicable to any
   code system.

     ROUTINE: LEXTRAN
   COMPONENT:  $$TEXT(TEXT,DATE,SUBSET,SOURCE,ARRAY)
   VARIABLES:  TEXT  Type: Input
                                 This is the search text string
                                 (mandatory).
               DATE  Type: Input
                                 This is the effective date (optional);
                                 the default, if no date is specified, is
                                 the current system date.
               SUBSET  Type: Input
                                 This is any code system subset mnemonic
                                 (optional). The allowable subset
                                 mnemonics are those that exist in the
                                 "AA" index of the subset definitions file
                                 (757.2).
               SOURCE  Type: Input
                                 This is the mnemonic for a code system
                                 (mandatory). The allowable code system
                                 mnemonics are those that exist in the "B"
                                 index of the coding systems file (757.
                                 03).
               ARRAY  Type: Both
                                 This is the name of the output array. The
                                 default if no array name is specified is
                                 'LEX' (optional) The format of the output
                                 is as follows:
                                  Output
```

```
                                       if call finds an active code for
                                       the source
                                            "1^LEXCODE"
                                            LEX     -   an array containing
                                                        information about the
                                                        code
                                            LEX(0)  -   a five piece string:
                                                        1. code
                                                        2. hierarchy
                                                        3. version
                                                        4. legacy code
                                                        5. code status
                                            LEX("F")    fully specified name
                                            LEX("P")    preferred term
                                            LEX("S",n)  synonyms (n is
                                                        the nth synonym)

                                      if call cannot find specified
                                    code on file
                                                "-2^"_LEXSCNM_" code
                                    "_LEXCODE_" not on file"
                                                "-2^"_LEXSCNM_" code
                                    "_LEXCODE_" not on file"
                                                where LEXSCNM is the source
                                    name
                                                      LEXCODE is the code

                                              if call finds an inactive code
                                    for the source
                                                "-4^"_LEXSCNM_" code
                                    "_LEXCODE_" not active for "_LEXVDT
                                                LEX    - an array containing
                                    information about the code
                                                LEX(0) -  a five piece
                                    string:
                                                          1. code
                                                          2. hierarchy
                                                          3. version
                                                          4. legacy code
                                                          5. code status

                                              otherwise
                                                "-1^error text"

                                              example of LEX array:

                                 LEX(0)="67922002^Substance^20050701^T-
C2500^1"
                                              LEX("F")="Serum (Substance)"
                                              LEX("P")="Serum"
```

4914 Validate Code for Source - LEXTRAN

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
```

```
            USAGE: Supported          ENTERED: OCT  5,2006
           STATUS: Active             EXPIRES:
         DURATION: Till Otherwise Agr VERSION:
             FILE:                       ROOT:
      DESCRIPTION:                       TYPE: Routine
   This API will return an array for a given text and code system indicating
   whether the text is valid for the specified code system. The data array
   returned will include the following:
       An indicator of whether the text is valid for the code system
       The code in the code system to which the text, if valid for code
   system,
         belongs.  If any of the passed parameters are incorrect or
   unrecognizable, the API will return an error message indicating the nature
   of the error.

     ROUTINE: LEXTRAN
   COMPONENT:  $$TXT4CS(TEXT,SOURCE)
   VARIABLES:  TEXT  Type: Input
                                    This is the search text string
                                    (mandatory).
               SOURCE  Type: Input
                                    This is the mnemonic for a code system
                                    (mandatory). The allowable code system
                                    mnemonics are those that exist in the "B"
                                    index of the coding systems file (757.
                                    03).
                  Type: Output
                                    This API returns the following output:

                                           1^code
                                              or
                                           -1^error message
```

5006 Obtain Synonyms for Code – LEXTRAN1

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
            USAGE: Supported          ENTERED: JUN 28,2007
           STATUS: Active             EXPIRES:
         DURATION:                    VERSION:
             FILE:                       ROOT:
      DESCRIPTION:                       TYPE: Routine
   This API will return an array for a given code and coding system. The
   array will contain all synonyms for the concept including the preferred
   term and the fully specified name.  If any of the passed parameters are
   incorrect or unrecognizable, the API will return an error message
   indicating the nature of the error.

     ROUTINE: LEXTRAN1
   COMPONENT:  $$GETSYN
   VARIABLES:
   COMPONENT:  $$GETSYN(LEXSRC,LEXCODE,LEXVDT,LEXRAY,LEXIENS)
   VARIABLES:  LEXSRC  Type: Input
                                    This is the mnemonic for a code system
                                    (mandatory). The allowable code system
                                    mnemonics are those that exist in the "B"
```

```
                         index of the coding systems file (757.03)
                         This is code system source abbreviation
                         Lexicon.
     LEXCODE  Type: Input
                         This is a code of a classification system
                         that is stored in the Lexicon.
                         Classification systems include SNOMED CT,
                         ICD, CPT, HCPCS, etc.
     LEXVDT  Type: Input
                         This is the effective date; the default
                         if no date is specified is the current
                         system date (optional).
     LEXRAY  Type: Both
                         This is the name of the output array. The
                         default, if no array name is specified,
                         is 'LEX' (optional)

                         The format of the output is as follows:
                            If valid code and source are passed
                            "1^no of synonyms"
                            LEX("P") = preferred term or major
                         concept name^IEN
                            LEX("F") = fully specified name^IEN
                         (if one exists)
                            LEX("S",n) = the nth synonym found^IEN
                         (if they exist)
                            The presence of IEN in the return
                         array is determined by the
                            LEXIENS parameter.  If the call does
                         not find the code for the specified
                         source it will return
                            "-2^"_LEXSCNM_" code "_LEXCODE_" not
                         on file"
                            where LEXCSNM is the source name
                                  LEXCODE is the code If an
                         invalid source is passed the call will
                         return
                            "-1^source not recognized"
     LEXIENS  Type: Input
                         If this parameter is set to 1 the
                         expression IEN will be included in the
                         return array. Default is 0 - exclude IENS
                         from return array.
```

5007 Obtain Fully Specified Name – LEXTRAN1

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
 SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN 28,2007
             STATUS: Active              EXPIRES:
           DURATION:                     VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This API returns the fully specified name for a given coding system and
   code.  If any of the passed parameters are incorrect or unrecognizable,
   the API will return an error message indicating the nature of the error.
```

```
     ROUTINE: LEXTRAN1
   COMPONENT:  GETFSN(LEXSRC,LEXCODE,LEXVDT)
   VARIABLES:  LEXSRC  Type: Input
                               This is the mnemonic for a coding system
                               (mandatory). The allowable code system
                               mnemonics are those that exist in the "B"
                               index of the coding systems file (757.03)
                               This is code system source abbreviation
                               Lexicon.
               LEXCODE  Type: Input
                               This is a code that belongs to a coding
                               system that is stored in the Lexicon.
                               Coding systems include SNOMED CT, ICD,
                               CPT, HCPCS, etc.
               LEXVDT  Type: Input
                               This is the effective date; the default
                               if no date is specified is the current
                               system date (optional).
```

5008 Obtain Preferred Term – LEXTRAN1

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN 28,2007
             STATUS: Active              EXPIRES:
           DURATION:                     VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This API returns the preferred term for a given coding system and code.
   If any of the passed parameters are incorrect or unrecognizable, the API
   will return an error message indicating the nature of the error.

     ROUTINE: LEXTRAN1
   COMPONENT:  $$GETPREF
   VARIABLES:  LEXSRC  Type: Input
                               This is the mnemonic for a code system
                               (mandatory). The allowable code system
                               mnemonics are those that exist in the "B"
                               index of the coding systems file
                               (757.03). This is the Lexicon code system
                               source abbreviation.
               LEXCODE  Type: Input
                               This is a code belonging to a coding
                               system that is stored in the Lexicon.
                               Coding systems include SNOMED CT,
                               ICD-9-CM, CPT, HCPCS, etc.
               LEXVDT  Type: Input
                               This is the effective date; the default
                               if no date is specified is the current
                               system date (optional).
```

5009 Obtain Designation Code – LEXTRAN1

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
```

```
              USAGE: Supported          ENTERED: JUN 28,2007
             STATUS: Active             EXPIRES:
           DURATION:                    VERSION:
               FILE:                       ROOT:
        DESCRIPTION:                       TYPE: Routine
   This API returns the designation code for a given coding system and text.
   If any of the passed parameters are incorrect or unrecognizable, the API
   will return an error message indicating the nature of the error.

     ROUTINE: LEXTRAN1
   COMPONENT:  $$GETDES(LEXSRC)
   VARIABLES:  LEXSRC  Type: Input
                                    This is the mnemonic for a code system
                                    (mandatory). The allowable code system
                                    mnemonics are those that exist in the "B"
                                    index of the coding systems file
                                    (757.03). This is the Lexicon code system
                                    source abbreviation.
               LEXTEXT  Type: Input
                                    This is the displayable text of the
                                    expression for which the designation code
                                    is being sought (mandatory).
               LEXVDT  Type: Input
                                    This is the effective date; the default
                                    if no date is specified is the
                                    current system date (optional).
   COMPONENT:  $$GETDES(LEXSRC,LEXCODE,LEXVDT)
```

5010 Obtain Mapped Codes – LEXTRAN1

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported          ENTERED: JUN 28,2007
             STATUS: Active             EXPIRES:
           DURATION:                    VERSION:
               FILE:                       ROOT:
        DESCRIPTION:                       TYPE: Routine
   This API returns an array containing the mappings for a specified code for
   a specified mapping identifier. If any of the passed parameters are
   incorrect or unrecognizable, the API will return an error message
   indicating the nature of the error.

     ROUTINE: LEXTRAN1
   COMPONENT:  GETASSN(LEXCODE,LEXMAP,LEXVDT,LEXRAY)
   VARIABLES:  LEXCODE  Type: Input
                                    This is a code belonging to a coding
                                    system that is stored in the Lexicon.
                                    Coding systems include SNOMED CT, ICD,
                                    CPT, HCPCS, etc.
               LEXMAP  Type: Input
                                    This is the mapping identifier
                                    (mandatory). This allows the system to
                                    determine which map is to be used for
                                    translation. The map must be defined in
                                    the mapping definition file (757.32).
               LEXVDT  Type: Input
```

```
                                    This is a code belonging to a coding
                                    system that is stored in the Lexicon.
                                    Coding systems include SNOMED CT, ICD,
                                    CPT, HCPCS, etc.
               LEXRAY  Type: Both
                                    This is the name of the output array. The
                                    default, if no array name is specified,
                                    is 'LEX' (optional) The output array will
                                    have the following format:
                                              LEX(n,CODE)=""
                                                where n is the nth mapped
                                    code
                                                code is the code which is
                                    mapped to

                                          e.g.
                                              LEXVFL>S
                                    V=$$GETASSN(15250008,"SCT2ICD") ZW LEX
                                              LEX=2
                                              LEX(1,"371.30")=""
                                              LEX(2,"371.40")=""

                                    which shows that SNOEMD CT code 15250008
                                    is mapped to two ICD-9-CM codes.
```

5011 Obtain Version Identifier - LEXTRAN

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN 28,2007
             STATUS: Active              EXPIRES:
           DURATION:                     VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This API returns the SDO version identifier for a given coding system,
   code, and date. If any of the passed parameters are incorrect or
   unrecognizable, the API will return an error message indicating the nature
   of the error.

     ROUTINE: LEXTRAN
   COMPONENT:  $$VERSION(LEXSRC,LEXCODE,LEXVDT)
   VARIABLES:  LEXSRC  Type: Input
                                    This is the mnemonic for a coding system
                                    (mandatory). The allowable coding system
                                    mnemonics are those that exist in the "B"
                                    index of the coding systems file
                                    (757.03). This is the Lexicon coding
                                    system source abbreviation.
               LEXCODE  Type: Input
                                    This is a code belonging to a coding
                                    system that is stored in the Lexicon.
                                    Coding systems include SNOMED CT
                                    ICD-9-CM, CPT, HCPCS, etc.
               LEXVDT  Type: Input
                                    This is the effective date; the default
                                    if no date is specified is the current
```

```
                                system date (optional).
```

5252 Lexicon/VBA APIs - LEXASCD

```
   CUSTODIAL PACKAGE: LEXICON UTILITY
 SUBSCRIBING PACKAGE:
               USAGE: Supported           ENTERED: AUG  8,2008
              STATUS: Pending             EXPIRES:
            DURATION: Till Otherwise Agr  VERSION:
                FILE:                        ROOT:
         DESCRIPTION:                        TYPE: Routine
    LEXASCD contains APIs for supporting the Automated Service Connected
    Designation (ASCD) project.


      ROUTINE: LEXASCD
    COMPONENT:  $$SC(ICD,VBA,EFF,.ARY)
    VARIABLES:  ICD  Type: Input
                                (Required) ICD-9-CM Diagnosis Code


                VBA  Type: Input
                                (Required) VA Disability code (Title 38)


                EFF  Type: Input
                                (Optional) Effective Date - This is the
                                date that service was provided to the
                                patient (aka, encounter date) and is used
                                to check to see if the ICD code was
                                mapped to the Disability code on that
                                date.

                .ARY  Type: Input
                                (Optional) This is a local array, passed
                                by reference.  When passed it will return
                                information about the ICD code and
                                Disability codes.

                $$SC  Type: Output
                                If the ICD code is mapped to a VA
                                disability, then the return value is a 5
                                piece "^" delimited string as follows:

                                 #  Content             Value
                                 1  Service Connected   1=Yes
                                 2  Connection (Match)  1=Full  0=Partial
                                 3  Mapping Status      1=Active
                                0=Inactive
                                 4  ICD Code Status     1=Active
                                0=Inactive
                                 5  Code Status         1=Active
                                0=Inactive

                                If the ICD Code is not mapped to a VA
                                disability, then the return value is a
```

```
                                 negative 2 piece "^" delimited string as
                                 follows:

                                    -1 ^ Not Found or Error Message

            ARY  Type: Output
                                 (Optional) This is a local array passed
                                 by reference.  If passed it will contain
                                 detailed information about the ICD code
                                 and Disability code.  The local array
                                 will contain the following 2 subscripts:

                                  ARY(1)=<ICD status>^<Date>^<Code>^<Term>
                                  ARY(2)=<Disability
                                 status>^<Date>^<Code>^<Term>

                                 Where status is either a 1 (active) or 0
                                 (inactive) and date is the effective date
                                 the code became either active or
                                 inactive.

               This function determines if there is a partial or full
               service connection for an ICD code based on the ICD codes
               and disability codes in the Lexicon.

COMPONENT:  $$DI(ICD,EFF,ARY)
VARIABLES:  ICD  Type: Input
                                 (Required) ICD-9-CM Code

            EFF  Type: Input
                                 (Optional) Effective Date (default TODAY)

            .ARY  Type: Input
                                 (Optional) Local array passed by
                                 reference, returns a list of Disability
                                 codes mapped to the ICD code.

            $$DI  Type: Output
                                 Returns the number of Disability codes
                                 mapped to an ICD code.

            ARY  Type: Output
                                 (Optional) Local Array of Disability
                                 Codes passed by reference

                                  ARY(0) = 5 Piece String detailing input
                                           Diagnosis code

                                   1   Number of Disability Codes found
                                   2   ICD Code
                                   3   Status of ICD Code  1 = Active 0 =
                                 Inactive
                                   4   Effective Date of ICD Code Status
                                   5   Versioned Text of ICD Code

                                  ARY(#) = 6 Piece String detailing output
                                           Disability codes
                                   1   Mapping 1 = Full 0 = Partial
                                   2   Effective Date of Mapping
                                   3   Disability Code
                                   4   Status of Disability Code
                                   5   Effective Date of Disability Code
                                 Status
                                   6   Versioned Text of Disability Code

                                  ARY("B",MAP,#)=""  Index of Local Array

                                   MAP Mapping 1 = Full 0 = Partial
                                   #   Entry Number in Array


               Return the number of Disability codes an ICD code is mapped
               to.  Optionally return an array of Disability codes an ICD
               code is mapped to in a local array passed by reference.

COMPONENT:  $$DX(VBA,EFF,ARY)
VARIABLES:  VBA  Type: Input
                                 (Required) Disability Code (Title 38)

            EFF  Type: Input
                                 (Optional) Effective Date (default TODAY)

            .ARY  Type: Input
                                 (Optional) Local array passed by
                                 reference, return a list of ICD codes
                                 mapped to a Disability code.

            $$DX  Type: Output
                                 The number of Diagnosis codes mapped to a
                                 Disability code.

            ARY  Type: Output
                                 (Optional) Local Array of Diagnosis Codes
                                 passed by reference

                                  ARY(0) = 5 Piece String detailing input
                                           Disability code

                                    1   Number of Diagnosis Codes found
                                    2   Disability Code
                                    3   Status of Code  1 = Active 0 =
                                 Inactive
                                    4   Effective Date of Disability Code
                                 Status
                                    5   Versioned Text of Disability Code

                                  ARY(#) = 6 Piece String detailing output
                                           Diagnosis codes

                                    1   Mapping 1 = Full 0 = Partial
                                    2   Effective Date of Mapping
                                    3   ICD-9-CM  Code
                                    4   Status of ICD-9-CM Code
```

```
                              5   Effective Date of ICD-9-CM Code
                           Status
                              6   Versioned Text of ICD-9-CM Code

                            ARY("B",MAP,#)=""  Index of Local Array

                              MAP Mapping 1 = Full 0 = Partial
                              #   Entry Number in Array

                 Return the number of ICD Diagnosis codes a Disability code
                 is mapped to.  Optionally return an array of ICD codes a
                 Disability code is mapped to in a local array passed by
                 reference.
```

5386 Lexicon Lookup Screens - LEXU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: MAR 13,2009
             STATUS: Active              EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This agreement includes common entry points for filtering Lexicon
   searches.  Similar to DIC("S") screens.


     ROUTINE: LEXU
   COMPONENT:  $$SC(Y,STRING,DATE)
   VARIABLES:  Y  Type: Input
                                 This is an Internal Entry Number (IEN) of
                                 the Lexicon's EXPRESSION file 757.01.

               STRING  Type: Input
                                 This is a three piece ";" delimited
                                 string used by the filter/screen logic.
                                 The first piece is called the "inclusion
                                 string" and list the Semantic Classes and
                                 Types to include in the search.  The
                                 second piece is called the "exclusion
                                 string" and list the Semantic Types to
                                 exclude from a search.  The third piece
                                 is called the "source string" and list
                                 classification sources to include in the
                                 search.

                                 Detailed Example:  Problems and Diagnosis
                                 (including ICD, CPT and DSM) looks like
                                 this:

                                 I $$SC^LEXU(Y,"BEH/DIS;999/64/66/73/
                                   74/77/82/169/170/171;ICD/CPT/
                                   CPC/DS4",DATE)

                                 The full explanation:
```

Piece 1: BEH/DIS Include expressions which relate to Behaviors and Diseases or Pathologic Processes.

Piece 2: 999/64/66/73/74/77/82/169/170/171 Exclude expressions which relate to Unknown or Untyped, Governmental or Regulatory Activity, Machine Activity, Manufactured Object, Medical Device or Supplies, Conceptual Entity, Spatial Concept, Functional Concept, Intellectual Product and Language.

Piece 3: ICD/CPT/CPC/DS4 Also include expressions which are linked to ICD-9-CM, CPT-4, HCPCS and coding systems.

In the filter string, Semantic Classes are identified by a 3 character mnemonic which can be found in the "B" cross-reference of the SEMANTIC CLASS file 757.11 and the Semantic Type is identified by internal entry number of the SEMANTIC TYPE file 757.12. The coding systems are identified by a 3 character mnemonic which can be found in the "ASAB" cross-reference of the CODING SYSTEMS file 757.03.

DATE Type: Input

If applicable, this is the date service was provided to the patient and passed in Fileman format. Default is TODAY.

This entry point filters Lexicon searches based on Semantic Class/Types and Classification Codes.

DIC("S")/Screen Usage: I $$SC^LEXU(Y,STRING,DATE)

COMPONENT: $$SO(Y,STRING,DATE)
VARIABLES: Y Type: Input

This is an Internal Entry Number (IEN) of the Lexicon's EXPRESSION file 757.01.

STRING Type: Input

This string is called the "source string" and is a list classification coding systems to include in the search. The classification coding systems are identified by a 3 character mnemonic which can be found in the "ASAB" cross-reference of the CODING SYSTEMS file 757.03.

Example: ICD/CPT/CPC/DS4 Means:

```
                              Search the Lexicon and include terms that
                              are
                                         linked to ICD-9-CM, CPT-4,
                              HCPCS and DSM-4
                                         coding systems.

                DATE  Type: Input
                              If applicable, this is the date service
                              was provided to the patient and passed in
                              Fileman format.  Default is TODAY.

                   This entry point filters Lexicon searches based on
                   Classification Codes.

                   DIC("S")/Screen Usage:  I $$SO^LEXU(Y,STRING,DATE)
```

5547 LAB LOINC File #95.3 APIs - LEXLR

```
   CUSTODIAL PACKAGE: LEXICON UTILITY
 SUBSCRIBING PACKAGE: DSS EXTRACTS
                      LAB SERVICE
               USAGE: Controlled Subscri  ENTERED: JUL 23,2010
              STATUS: Pending             EXPIRES:
            DURATION:                     VERSION:
                FILE:                        ROOT:
         DESCRIPTION:                        TYPE: Routine
    These API(s) support the custodial transition of the LAB LOINC file
    (#95.3) from Legacy LAB to Standards and Terminology Services (STS). These
    API(s) provide Read Access to the LAB LOINC file (#95.3) and should be
    used when accessing the file. The API(s) support Legacy LAB's
    encapsulation efforts and STS's LOINC Deployment efforts.

      ROUTINE: LEXLR
    COMPONENT:  $$CHKCODE(LEXCODE)
    VARIABLES:  LEXCODE  Type: Input
                              LOINC Code
                $$CHKCODE  Type: Output
                              LOINC File IEN or Null
                   Check if LOINC Code exists

                   Example:

                   >W $$CHKCODE^LEXLR("38553-4")

                   38553
    COMPONENT:  $$GETCODE(LEXCIEN)
    VARIABLES:  LEXCIEN  Type: Input
                              LOINC file IEN
                $$GETCODE  Type: Output
                              LOINC Code or Null
                   Get LOINC Code by IEN

                   Example:

                   >W $$GETCODE^LEXLR(38553)
                   38553-4
    COMPONENT:  GETNAME(LEXINPT,LEXINTY,.LEXNAME)
    VARIABLES:  LEXINPT  Type: Input
                              LOINC Code or IEN
                LEXINTY  Type: Input
                              Input Type (Optional- Default "C")
                               "C"=LOINC Code
                               "I"=LOINC IEN
                LEXNAME  Type: Output
                              LOINC Name Array subscripts:
                               ("FULLNAME")=Fully Specified Name field
                              (#80)
                               ("SHORTNAME")=Short Name filed (#81)
                   Get LOINC Name Array by Code or IEN

                   Example:

                   >D GETNAME^LEXLR("38553-4",,.LEXNAME)
                    ZW LEXNAME
                    LEXNAME("FULLNAME")="NARCOLEPSY ASSOCIATED
                   AG:ACNC:PT:SER/PLAS:ORD"
                    LEXNAME("SHORTNAME")="Narcolepsy Assoc Ag SerPl Ql"
    COMPONENT:  $$STATUS(LEXINPT,LEXINTY)
    VARIABLES:  LEXINPT  Type: Input
                              LOINC Code or IEN
                LEXINTY  Type: Input
                              Input Type (Optional- Default "C")
                               "C"=LOINC Code
                               "I"=LOINC IEN
                $$STATUS  Type: Output
                              Internal^External Status or Null
                   Get LOINC Code Status by Code or IEN

                   Example:

                   >W $$STATUS^LEXLR("38340-6")
                    1^DEL
    COMPONENT:  GETREC(LEXINPT,LEXINTY,.LEXREC)
    VARIABLES:  LEXINPT  Type: Input
                              LOINC Code or IEN
                LEXINTY  Type: Input
                              Input Type (Optional- Default "C")
                               "C"=LOINC Code
                               "I"=LOINC IEN
                LEXREC  Type: Output
                              LOINC Record Array subscripts:
                               RECORD("ADJUSTMENT")
                               RECORD("CHALLENGE")
                               RECORD("CHANGETYPE")
                               RECORD("CLASS")
                               RECORD("CLASSTYPE")
                               RECORD("CODE")
                               RECORD("COMPONENT")
                               RECORD("DATELASTCHANGED")
                               RECORD("EXAMPLEUNITS")
                               RECORD("FULLNAME")
                                  RECORD("MAPTO")
                                  RECORD("METHODTYPE")
                                  RECORD("PROPERTY")
                                  RECORD("SCALETYPE")
                                  RECORD("SHORTNAME")
                                  RECORD("STATUS")
                                  RECORD("SYSTEM")
                                  RECORD("TIME")
                                  RECORD("VACODE")
                                  RECORD("VUID")
               Get LOINC Record Array by Code or IEN

               Example:

               >D GETREC^LEXLR("38553-4",,.LEXREC)
                ZW LEXREC
                LEXREC("ADJUSTMENT")=""
                LEXREC("CHALLENGE")=""
                LEXREC("CHANGETYPE")="ADD"
                LEXREC("CLASS")="SERO"
                LEXREC("CLASSTYPE")="1^LABORATORY"
                LEXREC("CODE")="38553-4"
                LEXREC("COMPONENT")="NARCOLEPSY ASSOCIATED AG"
                LEXREC("DATELASTCHANGED")="3041103^NOV 03, 2004"
                LEXREC("EXAMPLEUNITS")=""
                LEXREC("FULLNAME")="NARCOLEPSY ASSOCIATED
               AG:ACNC:PT:SER/PLAS:ORD"
                LEXREC("MAPTO")=""
                LEXREC("METHODTYPE")=""
                LEXREC("PROPERTY")="ACNC"
                LEXREC("SCALETYPE")="Ordinal"
                LEXREC("SHORTNAME")="Narcolepsy Assoc Ag SerPl Ql"
                LEXREC("STATUS")=""
                LEXREC("SYSTEM")="SER/PLAS"
                LEXREC("TIME")="POINT"
                LEXREC("VACODE")=""
                LEXREC("VUID")=4681780
COMPONENT:  $$VERSION()
VARIABLES:  $$VERSION  Type: Output
                                 LOINC Version or Null
               Get LOINC Version

               Example:

               >W $$VERSION^LEXLR()
                2.14
COMPONENT:  COMLST(LEXCOM,LEXARR)
VARIABLES:  LEXCOM  Type: Input
                                 Component field (#100)
            LEXARR  Type: Input
                                 Component List Array (Full Global
                                 Reference)

                                 Note: LEXARR is not initialized (ie
                                 KILLed) on input
                                       The calling application is
                                 responsible for
```

```
                                       initializing the array.
            @LEXARR@(L  Type: Output
                                 Component List Array

                                 @LEXARRAY@(LEXCODE)=Fully Specified Name
                                 field (#80)
               Get List by Component

               Example:

               >D COMLST^LEXLR("VIRUS IDENTIFIED","LEXARRAY")
                ZW LEXARRAY
                LEXARRAY("10736-7")="VIRUS
               IDENTIFIED:PRID:PT:CSF:NOM:MICROSCOPY ELECTRON"
                LEXARRAY("10737-5")="VIRUS
               IDENTIFIED:PRID:PT:STL:NOM:MICROSCOPY ELECTRON"
                LEXARRAY("10738-3")="VIRUS
               IDENTIFIED:PRID:PT:TISS:NOM:MICROSCOPY ELECTRON"
                LEXARRAY("10739-1")="VIRUS
               IDENTIFIED:PRID:PT:XXX:NOM:MICROSCOPY ELECTRON"
                LEXARRAY("11484-3")="VIRUS
               IDENTIFIED:PRID:PT:AMN:NOM:VIRUS CULTURE"
                LEXARRAY("12272-1")="VIRUS IDENTIFIED:PRID:PT:XXX:NOM:IF"
                LEXARRAY("14451-9")="VIRUS
               IDENTIFIED:PRID:PT:EYE:NOM:VIRUS CULTURE"
                LEXARRAY("14452-7")="VIRUS
               IDENTIFIED:PRID:PT:CVX:NOM:VIRUS CULTURE"
                LEXARRAY("14453-5")="VIRUS
               IDENTIFIED:PRID:PT:GENV:NOM:VIRUS CULTURE"
                LEXARRAY("14454-3")="VIRUS
               IDENTIFIED:PRID:PT:NOSE:NOM:VIRUS CULTURE"
                LEXARRAY("14455-0")="VIRUS
               IDENTIFIED:PRID:PT:PLR:NOM:VIRUS CULTURE"
                LEXARRAY("14456-8")="VIRUS
               IDENTIFIED:PRID:PT:PRT:NOM:VIRUS CULTURE"
                LEXARRAY("14457-6")="VIRUS IDENTIFIED:PRID:PT:UR:NOM:VIRUS
               CULTURE"
                LEXARRAY("14458-4")="VIRUS
               IDENTIFIED:PRID:PT:SPT:NOM:VIRUS CULTURE"
COMPONENT:  DEPLST(LEXARR)
VARIABLES:  LEXARR  Type: Input
                                 Deprecated List Array (Full Global
                                 Reference)

                                 Note: LEXARR is not initialized (ie
                                 KILLed) on input
                                       The calling application is
                                 responsible for
                                       initializing the array.
            @LEXARR@(L  Type: Output
                                 Deprecated List Array

                                 @LEXARR@(LEXCODE)=Fully Specified Name
                                 Field (#80)
               Get Deprecated List
```

5679 Lexicon Utilities (ICD-10 UPDATE) - LEXU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN  3,2011
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine
   This is an addendum to ICR 1573 and contains functions added to LEXU
   during the implementation of ICD-10 Coding system. The APIs in this ICR
   become effective on the date of release of patches ICD*18.0*57 and
   LEX*2.0*80.


      ROUTINE: LEXU
   COMPONENT:  $$D10ONE(IEN,DATE)
               Returns either a single active ICD-10 Diagnosis code linked to
               the Lexicon expression or Null if no ICD-10 Diagnosis code is
               found.

   VARIABLES:  Input     IEN
                           Internal Entry Number in the Expression file
                           ^LEX(757.01).

   VARIABLES:  Input     DATE
                           This is a date in Fileman format used to check if
                           a code is active or inactive on a specified date.
                           If not supplied, it will default to TODAY.

   VARIABLES:  Output    $$D10ONE
                           A single active ICD-10 Diagnosis code or Null if
                           no ICD-10 Diagnosis code is found.

   COMPONENT:  $$D10(IEN,DATE)
               Returns either a string of active ICD-10 Diagnosis codes
               linked to an expression (separated by semicolon, i.e.,
               ICD10;ICD10;ICD10) or Null If no ICD-10 Diagnosis codes are
               found.

   VARIABLES:  Input     IEN
                           Internal Entry Number in the Expression file
                           ^LEX(757.01).

   VARIABLES:  Input     DATE
                           This is a date in Fileman format used to check if
                           a code is active or inactive on a specified date.
                           If not supplied, it will default to TODAY.

   VARIABLES:  Output    $$D10
                           A string of active ICD-10 Diagnosis codes linked
                           to an expression (separated by semicolon, i.e.,
                           ICD.10;ICD.10;ICD.10) or Null if no ICD-10
                           Diagnosis codes are found.

   COMPONENT:  $$P10ONE(IEN,DATE)
               Returns either a single active ICD-10 Procedure code linked to
```

```
            the Lexicon expression or Null if no icd-10 Procedure code is
            found.

VARIABLES:  Input     IEN
                        Internal Entry Number in the Expression file
                        ^LEX(757.01).

VARIABLES:  Input     DATE
                        This is a date in Fileman format used to check if
                        a code is active or inactive on a specified date.
                        If not supplied, it will default to TODAY.

VARIABLES:  Output    $$P10ONE
                        A single active ICD-10 Procedure code or Null if
                        no ICD-10 Procedure code is found.

COMPONENT:  $$ONE(IEN,DATE,SAB)
            Returns a single code for a given internal entry number (IEN)
            for a specified date and source.

VARIABLES:  Input     IEN
                        Internal Entry Number in the Expression file
                        ^LEX(757.01).

VARIABLES:  Input     DATE
                        This is a date in Fileman format used to check if
                        a code is active or inactive on a specified date.
                        If not supplied, it will default to TODAY.

VARIABLES:  Input     SAB
                        Source, this is an internal entry number in file
                        757.03 or the 3 character source mnemonic (found
                        on the ASAB cross-reference in file 757.03) or the
                        SOURCE ABBREVIATION (.01 field in file 757.03)

VARIABLES:  Output    $$ONE
                        A single code belonging to the specified coding
                        system by the source abbreviation that is active
                        on the dated provided and assigned to the
                        expression indicated by the internal entry number
                        (IEN).

COMPONENT:  $$ALL(IEN,DATE,SAB)
            Returns all classification codes for a given internal entry
            number (IEN) for a specified date and source.

VARIABLES:  Input     IEN
                        Internal Entry Number in the Expression file
                        ^LEX(757.01).

VARIABLES:  Input     DATE
                        This is a date in Fileman format used to check if
                        a code is active or inactive on a specified date.
                        If not supplied, it will default to TODAY.

VARIABLES:  Input     SAB
                        Source, this is an internal entry number in file
```

757.03 or the 3 character source mnemonic (found on the ASAB cross-reference in file 757.03) or the SOURCE ABBREVIATION (.01 field in file 757.03)

VARIABLES: Output $$ALL

A string of codes for the source provided (one or more) delineated by a semi-colon or null if no codes are found for the source.

COMPONENT: $$IMPDATE(SAB)

This entry point (extrinsic function) returns the implementation date for a specified source.

VARIABLES: Input SAB

Source, this is an internal entry number in file 757.03 or the 3 character source mnemonic (found on the ASAB cross-reference in file 757.03) or the SOURCE ABBREVIATION (.01 field in file 757.03)

VARIABLES: Output $$IMPDATE

The date that a coding system was implemented in VistA in Fileman format.

COMPONENT: $$CSYS(SYS,VDT)

This entry point returns information about a coding system on file in the Coding System file #757.03.

VARIABLES: Input SYS

Coding system identification system and can be in any of the following formats:

A nickname if one exist, i.e. HCPCS, DSM, NANDA, BIRADS

First three characters of source abbreviation from file 757.03, field .01

Source Abbreviation (file 757.03, field .01), i.e., ICD9, CPT4, SNM2

Nomenclature (file 757.03, field 1), i.e., ICD-9-CM, ICD-10-PCS, NANDA

Type (only for ICD), i.e., "DIAG" or "PROC" (requires date)

VARIABLES: Input VDT

Versioning date in Fileman format used to determine coding system if only the type is known (DIAG or PROC) and to determine the correct SDO version if one exists. If the date is not passed, then TODAY is used.

VARIABLES: Output $$CSYS

A 13 piece caret (^) delimited string

1   IEN

```
                          2    SAB (3 character source abbreviation)
                          3    Source Abbreviation (3-7 char)  (#.01)
                          4    Nomenclature (2-11 char) (#1)
                          5    Source Title (2-52 char) (#2)
                          6    Source (2-50 char) (#3)
                          7    Entries (numeric) (#4)
                          8    Unique Entries (numeric) (#5)
                          9    Inactive Version (1-20 char) (#6)
                         10    HL7 Coding System (2-40 char) (#7)
                         11    SDO Version Date (date) (757.08 #.01)
                         12    SDO Version Id (1-40 char) (757.08 #1)
                         13    Implementation Date (date) (#11)

COMPONENT:  $$HIST(CODE,SYS,.ARY)
            This entry point returns a codes activation history in an
            array passed by reference.

VARIABLES:  Input     CODE
                        This is a classification code found in the CODES
                        file 757.02 (Required)

VARIABLES:  Input     SYS
                        This is a coding system found in the CODING
                        SYSTEMS file 757.03.  It can be in the form of a
                        pointer, a source abbreviation or the name of a
                        coding nomenclature (Required)

VARIABLES:  Both      .ARY
                        This is an array of status effective dates and
                        activation status passed by reference (Required)

                            ARY(0) = Number of Activation History
                            ARY(<date>,<status>) = Comment

                        Status

                          0  = Inactive
                          1  = Active

                        Comments include:

                          Activated
                          Inactivated
                          Re-activated
                          Revised
                          Reused

VARIABLES:  Output    $$HIST
                        This is the number of activation history entries
                        found

                          or

                        -1 ^ error message

COMPONENT:  $$PERIOD(CODE,SYS,ARY)
            This entry point returns the activation periods (active from
            and to) of a code in an array passed by reference.

VARIABLES:  Input     CODE
                        This is a classification code found in the CODES
                        file 757.02 (Required)

VARIABLES:  Input     SYS
                        This is a coding system found in the CODING
                        SYSTEMS file 757.03.  It can be in the form of a
                        pointer, a source abbreviation or the name of a
                        coding nomenclature (Required)

VARIABLES:  Both      .ARY
                        This is an array of activation periods (including
                        active on date and inactive on date when inactive)
                        passed by reference (Required)

                        ARY(0)   6 piece "^" delimited string

                                   1  Number of Activation Periods found
                                   2  Coding System (pointer to file
                        775.03)
                                   3  Coding System Abbreviation
                                   4  Coding System Nomenclature
                                   5  Coding System Full Name
                                   6  Coding System Source

                                   or

                                  -1 ^ Message (no period or error)

                        ARY(Activation Date) = 4 piece "^" delimited
                        string

                                 1  Inactivation Date
                                    (conditional)

                                 2  Pointer to Expression file 757.01
                                    for the code in piece #2 above
                                    (required)

                                 3  Variable Pointer IEN;Root of a
                                    national file (see below)  Include
                                    when the code exist in an national
                                    file (conditional)

                                       CPT Procedure code    IEN;ICPT(
                                       ICD Diagnosis code    IEN;ICD9(
                                       ICD Procedure code    IEN;ICD0(

                                 4  Short Description from the SDO file
                                    (CPT or ICD)

                        ARY(Activation Date,0) = Lexicon Expression

VARIABLES:  Output    $$PERIOD
                        This is the number of activation periods found:
                          Same as output variable ARY(0)

                          or

                          -1 ^ error message

COMPONENT:  $$DX(IEN,VDT)
            This entry point is to be used as a screen Lexicon searches.
            It will screen out all terms not linked to either an ICD-9 or
            ICD-10 code.  The code type (ICD-9 or ICD-10) is determined by
            date.  If the date passed in is before the ICD-10
            implementation date then it will screen on ICD-9 codes.  If
            the date is on or after the ICD-10 implementation date then it
            will screen on ICD-10 codes.

            Assuming the variable VDT is a valid Fileman format date:

              Screen on ICD Diagnosis

                S DIC("S")="I $$DX^LEXU(+Y,VDT)"

                 VDT is before the ICD-10 implementation date = ICD-9
                 VDT is on or after the ICD-10 implementation date = ICD-10

            If the date is not passed, then TODAY is used.

VARIABLES:  Input     IEN
                        This is an internal entry number in the expression
                        file 757.01.  When performing Fileman lookups, set
                        it to the variable +Y.  (Required)

VARIABLES:  Input     VDT
                        This is the versioning date against which the
                        codes found by the search will be compared in
                        order to determine whether the code is active or
                        inactive.  Additionally if the date passed is
                        earlier than the ICD-10 implementation date then
                        the screen will only consider ICD-9 codes.  If the
                        date is on or after the ICD-10 implementation date
                        then the screen will only consider ICD-10 codes.
                        If the date is not passed, then TODAY's date will
                        be used.  (Optional)

VARIABLES:  Output    $$DX
                        This is a Boolean value:

                           $$DX = 1 (true) if the Lexicon entry is linked
                           to an active ICD code of the type specified by the
                           input parameter TYPE.

                           $$DX = 0 (false) if the Lexicon entry is not
                           linked to an active ICD code of the type specified
                           by the input parameter TYPE.

COMPONENT:  $$CSDATA(CODE,CSYS,VDT,.ARY)
            This entry point returns information about a code from a
            specified coding system.  It is intended to be similar to
            ICDDATA^ICDXCODE except it is not limited to ICD coding
            systems.

VARIABLES:  Input     CODE
                        This is a code found in file 757.02 (CODES file).

VARIABLES:  Input     CSYS
                        This is a pointer to the CODING SYSTEMS file
                        757.03 that identifies the coding system that CODE
                        belongs to.  It is important to specify the coding
                        system because some codes overlap various coding
                        systems.

VARIABLES:  Input     VDT
                        This is the date that will be used to determine
                        the status of the code in the CODE input
                        parameter.  The status will either be Inactive or
                        Active.

VARIABLES:  Both      .ARY
                        This is the name of a local array passed by
                        reference that will contain the output.

                        ARY()

                         Lexicon Data

                            ARY("LEX",1)      IEN ^ Preferred Term
                            ARY("LEX",2)      Status ^ Effective Date
                            ARY("LEX",3)      IEN ^ Major Concept Term
                            ARY("LEX",4)      IEN ^ Fully Specified Name
                            ARY("LEX",5)      Hierarchy (if it exists)
                            ARY("LEX",6,0)    Synonyms/Other Forms
                            ARY("LEX",6,1)      Synonym #1
                            ARY("LEX",6,n)      #n
                            ARY("LEX",7,0)    Semantic Map
                            ARY("LEX",7,1,1)    Class ^ Type (internal)
                            ARY("LEX",7,1,2)    Class ^ Type (external)
                            ARY("LEX",7,1,n)    #n
                            ARY("LEX",7,1,n)    #n
                            ARY("LEX",8)      Deactivated Concept Flag

                         Coding System Data

                            ARY("SYS",1)      IEN
                            ARY("SYS",2)      Short Name
                            ARY("SYS",3)      Age High
                            ARY("SYS",4)      Age Low
                            ARY("SYS",5)      Sex
                            ARY("SYS",6,0)    MDC/DRG Pairing
                            ARY("SYS",6,1,1)    MDC
                            ARY("SYS",6,1,2)    DRGs
                            ARY("SYS",6,n,1)    #n
                            ARY("SYS",6,n,2)    #n
                            ARY("SYS",7)      Complication/Comorbidity
                            ARY("SYS",8)      MDC13
```

```
    ARY("SYS",9)      MDC24
    ARY("SYS",10)     MDC24
    ARY("SYS",11)     Unacceptable as Principal Dx
    ARY("SYS",12)     Major O.R. Procedure
    ARY("SYS",13)     Procedure Category
    ARY("SYS",14,0)   Description
    ARY("SYS",14,1)     Text 1
    ARY("SYS",14,n)     #n
```

Each data element will be in the following format:

```
    ARY(ID,SUB) = DATA
    ARY(ID,SUB,"N") = NAME

      Where

        ID      Identifier, may be:

                    "LEX" for Lexicon data
                    "SYS" for Coding System data

        SUB     Numeric Subscript

        DATA    This may be:

                 - A value if it applies and is found
                 - Null if it applies but not found
                 - N/A if it does not apply

        NAME    This is the common name given to
the
                data element
```

Example:

```
S X=$$CSDATA^LEXU("C18.6",30,3141010,.ARY)

X=1

ARY("LEX",1)="267081^Malignant neoplasm of
descending colon" ARY("LEX",1,"N")="IEN ^
Preferred Term" ARY("LEX",2)="1^3131001"
ARY("LEX",2,"N")="Status ^ Effective Date"
ARY("LEX",3)="267081^Malignant neoplasm of
descending colon" ARY("LEX",3,"N")="IEN ^ Major
Concept Term" ARY("LEX",4)=""
ARY("LEX",4,"N")="IEN ^ Fully Specified Name"
ARY("LEX",5)="" ARY("LEX",5,"N")="Hierarchy (if
exists)" ARY("LEX",6,0)=0
ARY("LEX",6,0,"N")="Synonyms and Other Forms"
ARY("LEX",7,0)=1 ARY("LEX",7,0,"N")="Semantic Map"
ARY("LEX",7,1,1)="6^47"
ARY("LEX",7,1,1,"N")="Semantic Class ^ Semantic
Type (internal)"
ARY("LEX",7,1,2)="Diseases/Pathologic
Processes^Disease or Syndrome"
```

```
                        ARY("LEX",7,1,2,"N")="Semantic Class ^ Semantic
                        Type (external)" ARY("LEX",8)=""
                        ARY("LEX",8,"N")="Deactivated Concept Flag"
                        ARY("SYS",1)=501148 ARY("SYS",1,"N")="IEN"
                        ARY("SYS",2)="Malignant neoplasm of descending
                        colon" ARY("SYS",2,"N")="Short Name"
                        ARY("SYS",3)="" ARY("SYS",3,"N")="Age High"
                        ARY("SYS",4)="" ARY("SYS",4,"N")="Age Low"
                        ARY("SYS",5)="" ARY("SYS",5,"N")="Sex"
                        ARY("SYS",6,0)=0 ARY("SYS",6,0,"N")="MDC/DRG"
                        ARY("SYS",7)=""
                        ARY("SYS",7,"N")="Complication/Comorbidity"
                        ARY("SYS",8)="" ARY("SYS",8,"N")="MDC13"
                        ARY("SYS",9)="" ARY("SYS",9,"N")="MDC24"
                        ARY("SYS",10)="" ARY("SYS",10,"N")="MDC24"
                        ARY("SYS",11)="" ARY("SYS",11,"N")="Unacceptable
                        as Principal Dx" ARY("SYS",12)="N/A"
                        ARY("SYS",13)="N/A" ARY("SYS",14,0)=1
                        ARY("SYS",14,0,"N")="Description"
                        ARY("SYS",14,1)="MALIGNANT NEOPLASM OF DESCENDING
                        COLON"

VARIABLES:  Output    $$CSDATA
                        This is a boolean value:

                           1 if the API is successful (fully or partial)
                           0 if the API is unsuccessful

                              or

                           -1 ^ Error Message

COMPONENT:  $$FREQ(TEXT)
            This API checks the frequency of use of keywords contained in
            a text string in the Lexicon.

VARIABLES:  Input     TEXT
                        This is a text string intended as the input for a
                        Lexicon search.

VARIABLES:  Output    $$FREQ
                        This is the maximum number of records that must be
                        inspected during a Lexicon search to find matching
                        entries for the input search text.

                        If this number is too high, applications can
                        prompt the user to either continue with the search
                        or to further refine the search.

COMPONENT:  $$MAX(SYS)
            This API returns the SEARCH THRESHOLD field #12 of the CODING
            SYSTEMS file #757.03.

VARIABLES:  Input     SYS
                        This is a pointer to the CODING SYSTEM file
                        #757.03.
```

```
VARIABLES:  Output    $$MAX
                        This is the value stored in the SEARCH THRESHOLD
                        field #12 of the CODING SYSTEMS file 757.03.  This
                        value, along with the value of $$FREQ^LEXU, can be
                        used to evaluate if a search should continue or be
                        further refined.

                        $$FREQ  The maximum number or records to inspect
                                during a search based on the input text
                                string.

                        $$MAX   The maximum number of records to consider
                                for a coding system before refining the
                                search.

COMPONENT:  $$CAT(CODE)
            This API returns the category (i.e., header) of an ICD
            Diagnosis code.

VARIABLES:  Input     CODE
                        This is a valid ICD Diagnosis code.

VARIABLES:  Output    $$CAT
                        This is the category (or header) to which the ICD
                        Diagnosis code belongs.

COMPONENT:  $$ISCAT(CODE)
            This API determines if an ICD-10 string is an ICD category.

VARIABLES:  Input     CODE
                        This is a string used to determine if it is an
                        ICD-10 code or a category.

VARIABLES:  Output    $$CODE
                        This is a 4 piece "^" delimited string contains
                        the following:

                          1  Category flag
                                1 CODE is a Category
                                0 CODE is not a Category

                          2  Number of Sub-Categories belonging
                             to the Category

                          3  Number of Codes belonging to the
                             Category

                          4  Parent Category
                                Parent Category
                                Null if no Parent Category

COMPONENT:  $$PFI(FRAG,CDT,.ARY)
            This API returns a local array containing information about an
            ICD-10 procedure code fragment.

VARIABLES:  Input     FRAG
                        This is a string representing a fragment of an
                        ICD-10 procedure code.  An ICD-10 code is 7
                        characters long and a code fragment is a portion
                        of the code starting at character position #1 and
                        not to exceed 6 characters in length.

VARIABLES:  Input     CDT
                        This is the versioning date used to select an
                        entry that was appropriate on the date passed.  If
                        no date is passed, TODAY is used.  Busines rules
                        apply, if the date passed is before the
                        implementation date for ICD-10, then the
                        implementation date is used.

VARIABLES:  Both      .ARY
                        This is a local array passed by reference that
                        will contain information about a code fragment.

                         ARY(0)      5 piece "^" delimited string
                                         1  Unique Id
                                         2  Code Fragment
                                         3  Date Entered
                                         4  Source
                                         5  Details

                         ARY(1)      4 piece "^" delimited string
                                         1  Effective Date
                                         2  Status
                                         3  Effective Date External
                                         4  Status External

                         ARY(2)      Name/Title
                         ARY(3)      Description
                         ARY(4)      Explanation
                         ARY(5,0)    # of synonyms included
                         ARY(5,n)    Included synonyms

VARIABLES:  Output    $$PFI
                        This is a success flag

                              1 on success
                             -1 ^ error message on error

COMPONENT:  $$NXSAB(SAB,REV)
            This API returns the next Source Abbreviation found in the
            CODING SYSTEMS file 757.03 using the ASAB cross-reference.  It
            is the equivalent of $O(^LEX(757.03,"ASAB",SAB)).

VARIABLES:  Input     SAB
                        This is either a Source Abbreviation (SAB) from
                        the .01 field of file 757.03 or null value to find
                        the first SAB.

VARIABLES:  Input     REV
                        This is a reverse flag (optional).  If set to 1
                        the API will find the next Source Abbreviation in
                        the reverse order (aka, previous SAB)
```

```
VARIABLES:  Output    $$NXSAB
                        This is either the next Source Abbreviation (SAB)
                        previous SAB (when reverse flag set to 1) or null
                        if the input parameter SAB has no next SAB.

COMPONENT:  $$RECENT(SAB)
            This API returns a boolean valued flag to indicate if the
            coding system identified by the source abbreviation has been
            recently updated with in a 90 day window (looking forward by
            30 days and to the past by 60 days).  This is to evaluate if a
            coding system was updated by a quarterly patch, and may be
            used to trigger an code set update protocol.

VARIABLES:  Input     SAB
                        This is either a 3 character source abbreviation
                        taken from the .01 field of the CODING SYSTEM file
                        757.03 or a pointer to the CODING SYSTEM file
                        757.03.

VARIABLES:  Output    $$RECENT
                        This is a Boolean valued flag.

                        1   indicates the Coding System has been recently
                            updated by a quarterly update by looking 30
                        days
                            into the future and 60 days for a change made
                            to the coding system.

                        0   indicate the Coding System has NOT been
                        recently
                            updated by a quarterly update.

COMPONENT:  $$RUPD(SAB)
            This API returns a date the coding system identified by the
            source abbreviation has been updated based on a recent date
            (TODAY+3).  This is to evaluate if a coding system was updated
            by a quarterly patch, and may be used to trigger an code set
            update protocol.

VARIABLES:  Input     SAB
                        This is either a 3 character source abbreviation
                        taken from the .01 field of the CODING SYSTEM file
                        757.03 or a pointer to the CODING SYSTEM file
                        757.03.

VARIABLES:  Output    $$RUPD
                        This is date found for the last update to a coding
                        system based on a recent date (TODAY+30)

COMPONENT:  $$LUPD(SAB,DATE)
            This API returns the last date the coding system identified by
            the source abbreviation has been updated based on the date
            supplied (optional).  If no date is supplied, the last date
            will be returned.

VARIABLES:  Input     SAB
                        This is either a 3 character source abbreviation
```

```
                         taken from the .01 field of the CODING SYSTEM file
                         757.03 or a pointer to the CODING SYSTEM file
                         757.03.

VARIABLES:  Input     DATE
                         This is a date to use to retrieve the last update
                         for a coding system (optional)

VARIABLES:  Output    $$LUPD
                         This is date found for the last update to a coding
                         system based on a recent passed or the last date
                         updated if a date is not passed.

COMPONENT:  $$PAR(TXT,.ARY)
            This API takes a string of text and parses the string into
            words using the parsing logic used by the Lexicon search
            engine.

VARIABLES:  Input     TXT
                         This is a text string intended as the input for a
                         Lexicon search and will be parsed into words and
                         placed in a local array (Required)

VARIABLES:  Input     .ARY
                         Local array, passed by reference

VARIABLES:  Output    $$PAR
                         This is the number of words parsed from the text

VARIABLES:  Output    ARY
                         This is a local array containing the words parsed
                         from the input text.  The words are arranged in
                         the order they are found in the text; in
                         alphabetical order; and in the order they are used
                         in the Lexicon search (frequency order)

                         Total words found

                            ARY(0)=#

                         Words listed in the order they appear in the input
                         variable TXT

                            ARY(1)=WORD1
                            ARY(n)=WORDn

                         Words listed alphabetically with the frequency of
                         occurrence in the Lexicon

                            ARY("B",WORDA)=# (Frequency of Use)
                            ARY("B",WORDB)=#

                         Words listed in the frequency order.  This is the
                         order the words will be used by the Lexicon search
                         engine, starting with the least frequently used
                         word and ending with the most frequently used
                         word.
```

```
                             ARY("L",1)=SEARCHWORD1
                             ARY("L",n)=SEARCHWORDn

   COMPONENT:  $$SCT(IEN,DATE)
               This entry point is a screen used during searches to return
               terms with SNOMED CT codes that are not classified as
               Veterinary.

   VARIABLES:  Input     IEN
                           Internal Entry Number in the Expression file
                           ^LEX(757.01).

   VARIABLES:  Input     DATE
                           This is a date in Fileman format used to check if
                           a code is active or inactive on a specified date.
                           If not supplied, it will default to TODAY.

   VARIABLES:  Output    $$SCT
                           This is a Boolean value:

                             $$SCT = 1 (true) if the Lexicon entry is

                                       Linked to an active SNOMED CT code
                                       and the term is not a Veterinary term

                             $$SCT = 0 (false) if the Lexicon entry is

                                       Not linked to an SNOMED CT code
                                       or the SNOMED CT code is inactive
                                       or the term is a Veterinary term

                           Excludes terms semantically typed as a Veterinary
                           term.
```

5680 Lexicon Expression - LEXCODE

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN  3,2011
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
               FILE:                        ROOT:
        DESCRIPTION:                        TYPE: Routine
   This is an addendum to ICR 1614 and contains functions added to LEXCODE
   during the implementation of ICD-10 Coding system.


     ROUTINE: LEXCODE
   COMPONENT:  $$EXP(<CODE>,<SAB>,<DATE>)
   VARIABLES:  CODE  Type: Input
                                Code taken from the Codes file 757.02.
                                (Required)

               SAB  Type: Input
```

```
                             Source, this is an internal entry number
                             in file 757.03 or the 3 character source
                             mnemonic (found on the ASAB
                             cross-reference in file 757.03) or the
                             SOURCE ABBREVIATION (.01 field in file
                             757.03) It is used to distinguish between
                             different coding systems with the same
                             code (i.e., the code 300.01 occurs in
                             both the ICD-9 CM and DSM IV coding
                             systems). (Required)

         DATE  Type: Input
                             This is a date in Fileman format used to
                             check if a code is active or inactive on
                             a specified date. If not supplied, it
                             will default to TODAY.

         $$EXP  Type: Output
                             This is a 2 Piece "^" delimited string
                             containing

                               Either:

                                 1  Pointer to Expression file #757.01
                                 2  Display Text (Expression)

                               or:

                                 1  -1
                                 2  Error Message

            This entry point allows an application to retrieve an
            active preferred term for a coding system on the date
            provided.
```

5681 Lexicon ICD-10 APIs - LEX10CS

```
    CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: JUN  6,2011
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine
   Supported APIs for the implementation of ICD-10. The APIs in this ICR
   become effective on the date of release of patches ICD*18.0*57 and
   LEX*2.0*80.


     ROUTINE: LEX10CS
   COMPONENT:  $$ICDSRCH(TEXT,.ARRAY,DATE,LEN,FILTER)
               This entry point searches for an ICD code and returns active
               ICD codes found up to the number defined by the input
               parameter Length.  If the date is before the ICD-10
               implementation date the search will be conducted for
               ICD-9 codes.  If the date passed is on or after the ICD-10
```

```
            implementation date the search will be conducted for
            ICD-10 codes.

VARIABLES:  Input     TEXT
                        Text or Code to search for.  (Required)

VARIABLES:  Input     .ARRAY
                        This is a local output array passed by reference.
                        (Required)

VARIABLES:  Input     DATE
                        The date against which the codes found by the
                        search will be compared in order to determine
                        whether the code is active or inactive. If not
                        passed, TODAY's date will be used.  (Optional, but
                        when used must be in FileMan format)

VARIABLES:  Input     LEN
                        This specifies the length of the list of codes.
                        Default value is 30.  (Optional)

VARIABLES:  Input     FILTER
                        This is a filter to apply to the search to screen
                        out unwanted entries.  It is MUMPS code in the
                        form of a valid IF statement.  It is the same as
                        Fileman's DIC("S").  (Optional)

VARIABLES:  Output    $$ICDSRCH
                        2 Piece "^" delimited string the success/error
                        conditions

                        A Positive number for successful search not
                        exceeding the Length of the list.

                        A Negative number for an unsuccessful search or a
                        search condition

                            -1^No codes found

                               No codes found and local array not returned

                            -2^Too many items found, please refine search

                               The list exceeds the number indicated by LEN,
                               however, the first LEN of the Array is
                               returned and the list is marked as a pruned list

VARIABLES:  Output    ARRAY
                        Output Array passed by reference containing the
                        codes found

                            ARRAY(0)=# found ^ Pruning Indicator
                            ARRAY(1)=CODE ^status effective date
                            ARRAY(1,"IDL )=ICD Dx long description (if code)
                            ARRAY(1,"IDL ,1)=ICD Dx IEN ^ effective date
                            ARRAY(1,"IDS )=ICD Dx short description (if code)
                            ARRAY(1,"IDS ,1)=ICD Dx IEN ^ effective date
```

```
                           ARRAY(1,"LEX )=Lexicon expression
                           ARRAY(1,"LEX ,1)=Lexicon IEN ^ effective date
                           ARRAY(1,"SYN ,1)=synonym #1
                           ARRAY(1,"SYN",m)=Synonym #m

                       Pruning Indicator:  If the second piece of ARY(0)
                       is greater than 0, then the list has been pruned,
                       limiting the list to the length specified by the
                       input parameter <Len>.

COMPONENT:  $$DIAGSRCH(TEXT,.ARRAY,DATE,LEN,FILTER)
            This entry point searches for an ICD code and returns active
            ICD-10 codes found up to the number defined by the input
            parameter Length.  This search is similar to $$ICDSRCH^LEX10CS
            except it only searches ICD-10 codes.

VARIABLES:  Input     TEXT
                        Text or Code to search for.  (Required)

VARIABLES:  Input     .ARRAY
                        This is a local output array passed by reference.
                        (Required)

VARIABLES:  Input     DATE
                        The date against which the codes found by the
                        search will be compared in order to determine
                        whether the code is active or inactive. (Optional,
                        but when used must be in FileMan format)

VARIABLES:  Input     LEN
                        This specifies the length of the list of codes.
                        Default value is 30.  (Optional)

VARIABLES:  Input     FILTER
                        This is a filter to apply to the search to screen
                        out unwanted entries.  It is MUMPS code in the
                        form of a valid IF statement.  It is the same as
                        Fileman's DIC("S").  (Optional)

VARIABLES:  Output    $$DIAGSRCH
                        2 Piece "^" delimited string the success/error
                        conditions

                        A Positive number for successful search not
                        exceeding the Length of the list.

                        A Negative number for an unsuccessful search or a
                        search condition

                            -1^No codes found

                               No codes found and local array not returned

                            -2^Too many items found, please refine search

                               The list exceeds the number indicated by LEN,
                               however, the first LEN of the Array is
```

```
                         returned and the list is marked as a pruned list

VARIABLES:  Output    ARRAY
                        Output Array passed by reference containing the
                        ICD-10 codes found

                            ARRAY(0)=# found ^ Pruning Indicator
                            ARRAY(1)=CODE or Category ^ status effective
                                     date (code only)
                            ARRAY(1,"CAT")=Category Name
                            ARRAY(1,"IDL )=ICD Dx long description (if code)
                            ARRAY(1,"IDL ,1)=ICD Dx IEN ^ effective date
                            ARRAY(1,"IDS )=ICD Dx short description (if code)
                            ARRAY(1,"IDS ,1)=ICD Dx IEN ^ effective date
                            ARRAY(1,"LEX )=Lexicon expression
                            ARRAY(1,"LEX ,1)=Lexicon IEN ^ effective date
                            ARRAY(1,"SYN ,1)=synonym #1
                            ARRAY(1,"SYN",m)=Synonym #m
                            ARRAY(1,"MENU")=Menu Text
                            ARRAY(1,"MSG")=Message (unversioned only)

                        Notes:

                               Pruning Indicator:  If the second piece of
                               ARRAY(0) is greater than 0, then the list
                               has been pruned, limiting the list to the
                               length specified by the input parameter
                        LEN.

                               If there is a message, it can be either:

                                  Inactive mm/dd/yyyy
                                  Pending mm/dd/yyyy

COMPONENT:  $$PCSDIG(FRAG,DATE)
            This entry point takes an ICD-10-PCS code, full or a partial
            (code fragment), and  returns a list of all possibilities for
            the next character, with any definitions and examples
            available.  If a full code is passed (7 characters) it will
            return the code's long description, and status.

VARIABLES:  Input     FRAG
                        This is an ICD-10-PCS Code (7 characters) or a
                        fragment of an ICD-10-PCS Code (less that 7
                        characters) (Required)

VARIABLES:  Input     DATE
                        The date against which the codes found by the
                        search will be compared in order to determine
                        whether the code is active or inactive. (Optional,
                        defaults to TODAY)

VARIABLES:  Output    LEXPCDAT
                        This is both a variable and an array.  If the
                        length of the FRAG is less than 7, then the array
                        will contain the next level of choices and
                        associated data.  If the length of the FRAG is
```

equal to 7, then a fully specified code has been passed and the array will contain the long description, status and effective date of the code.

If the string FRAG is a valid code fragment or null, the return value Of LEXPCDAT will be 1 and the following array will be returned.

```
                                LEXPCDAT("NEXLEV ,char1, DESC )=char1
description
                                LEXPCDAT("NEXLEV ,char2, DESC )=char2
description
                                LEXPCDAT("NEXLEV ,charn, DESC )=charn
description
```

If the string FRAG is a valid code the return value Of LEXPCDAT will be 1 and the following array will be returned.

```
LEXPCDAT("PCSDESC )=long description for code
LEXPCDAT("STATUS )=status_ ^ _effective date
```

If the string FRAG is a not valid code fragment or null and it is not a valid code, the return value Of LEXPCDAT will be 0 and no array will be returned.

COMPONENT: $$CODELIST(SYS,SPEC,SUB,DATE,LEN,FMT)
This entry point creates a list of active codes based on an input code mask and date and places the list in a temporary global array with a subscript specified by the calling application.

VARIABLES: Input SYS
Coding system the Coding Systems file 757.03. This can be a pointer, the .01 field or the abbreviated 3 character mnemonic (found on the ASAB cross-reference (Required)

VARIABLES: Input SPEC
This is a code from the coding system or a code mask. Any character position can be occupied by a question mark "? to allow any value in that character position. The trailing character may be an asterisk indicating any characters that follow are allowable. The following are all valid; C71.0, C71.*, C7?.0 or 02V?0* (Required)

VARIABLES: Input SUB
This is a string, preferably in the calling applications namespace, that will be used as a subscript in a temporary global array (optional, if not passed CODELIST will be used as a subscript).

```
^TMP(SUB,$J)
```

```
VARIABLES:  Input     DATE
                        The date against which the codes found by the
                        search will be compared in order to determine
                        whether the code is active or inactive. (Optional,
                        but when used, must be in FileMan format)

VARIABLES:  Input     LEN
                        This specifies the length of the list of codes.
                        Default value is 30.  (Optional)

VARIABLES:  Input     FMT
                        List Format (Optional)

                           0 - (zero) returns a brief listing in the
                               global array (codes only) (DEFAULT)

                           1 - returns a detailed listing in the
                               global  array, includes the code, a
                               variable pointer the code in a code
                               set file (i.e., ICD-9, CPT, etc), the
                               code's effective date, the expression
                               and the expression IEN from file
                               #757.01.

VARIABLES:  Output    $$CODELIST
                        2 Piece "^" delimited string containing

                        Either:

                           Piece  Meaning
                             1    Positive value for success
                             2    Number of Codes Found

                        or:

                           Piece  Meaning
                             1    Negative number for error or condition
                             2    Error Message or Condition

                        Example errors/conditions

                            -1   Coding system not specified  (First
                                 parameter is missing)
                            -2   Invalid coding system/source abbreviation
                                 (First parameter not valid)
                            -3   No search specification (Second parameter
                                 missing)
                            -4   Insufficient search specification"
                                 (Second parameter too short)
                            -5   Invalid search specification (Second
                                 parameter invalid)
                            -6   Number of matches exceeds specified
                                 limit (More matches found, only the
                                 number specified will be returned)

VARIABLES:  Output    TMP(SUB,$J,
```

This is a global array subscripted as specified by the calling application, input parameter SUB. It contains a list of codes found in either a brief or detailed output.

Brief output array (FMT = 0)

```
  ^TMP(SUB,$J,0)=Total n
  ^TMP(SUB,$J,1)=Code 1
  ^TMP(SUB,$J,2)=Code 2
  ^TMP(SUB,$J,n)=Code n
```

Detailed output array (FMT = 1)

```
  ^TMP(SUB,$J,0)=Total n
  ^TMP(SUB,$J,1)=Code 1
  ^TMP(SUB,$J,1,1)=Variable Pointer 1 ^
       Code 1 ^ date
  ^TMP(SUB,$J,1,2)=Term 1 IEN ^ Term 1
  ^TMP(SUB,$J,1,"MSG")=Message (unversioned only)
  ^TMP(SUB,$J,2)=Code 2
  ^TMP(SUB,$J,2,1)=Variable Pointer 2 ^
       Code 2 ^ date
  ^TMP(SUB,$J,2,2)=Term 2 IEN ^ Term 2
  ^TMP(SUB,$J,2,"MSG")=Message (unversioned only)
  ^TMP(SUB,$J,n)=Code n
  ^TMP(SUB,$J,n,1)=Variable Pointer n ^
       Code n ^ date
  ^TMP(SUB,$J,n,2)=Term n IEN ^ Term n
  ^TMP(SUB,$J,n,"MSG")=Message (unversioned only)
```

Notes:

If the code is found in one of the VistA Code Set files controlled by a Standards Development Organization (SDO) then a variable pointer will be provided for that code in that file. Example of SDO controlled files include:

ICD DIAGNOSIS file #80
ICD OPERATION/PROCEDURE file #80.1
CPT file #81
DSM file #627.7

If there is a message, it can be either:

Inactive mm/dd/yyyy
Pending mm/dd/yyyy

COMPONENT: $$TAX(TEXT,SRC,CDT,SUB,VER)
This API returns codes that qualify for building a taxonomy. Originally designed for ICD-10, but modified to include any coding system (DSM, ICD, SNOMED CT, CPT, etc.)

```
VARIABLES:  Input     TEXT
                        This is the text or code to search for.

VARIABLES:  Input     SRC
                        This is a string of coding systems delimited by an
                        "^" up arrow to limit the search to the desired
                        coding systems.  The string can consist of
                        pointers to the CODING SYSTEM file 757.03 or
                        source abbreviations.

                           Using source abbreviations
                           "ICD^ICP^10D^10P"

                           Using source pointers to file 757.03
                           "1^2^30^31"

VARIABLES:  Input     CDT
                        This a date used processing versioned data.  Also,
                        when a versioned list is required (input parameter
                        VER=1) it is used to suppress inactive codes from
                        the list.

VARIABLES:  Input     SUB
                        This is the name of a subscript to use in the ^TMP
                        global (optional).  This allows for applications
                        to put the data in their own namespace.  It also
                        allows for multiple search results to exist.

                          ^TMP(LEXSUB,$J,
                          ^TMP("LEXTAX",$J,    Default

VARIABLES:  Input     VER
                        This is a boolean flag that indicates if the
                        search is to be versioned.  If set to 1, only
                        active codes will be returned based on the date in
                        the CDT input parameter.  If no date, then TODAY
                        is used.

                          VER = 0  Return active and inactive codes
                          VER = 1  Version, return active codes only

VARIABLES:  Output    $$TAX
                        This the number of codes found by the search or -1
                        ^ with an error message.

VARIABLES:  Output    TMP(SUB,$J)
                        This is the results of the search saved in the
                        ^TMP global with the specified subscript:

                          ^TMP(SUB,$J,SRC,(CODE_" "),#)

                            5 piece "^" delimited string

                            1   Activation Date (can be a future date)
                            2   Inactivation Date (can be a future date)
                            3   Lexicon IEN to Expression File 757.01
                            4   Variable Pointer to a National file
```

```
    5   Short Name from a National file

  ^TMP(SUB,$J,SRC,(CODE_" "),#,0)

    2 piece "^" delimited string

    1   Code (no spaces)
    2   Lexicon Expression

Example:

Search for   "DIFFICULTY IN WALKING" For sources
"ICD^10D"  (ICD-9/10 Diagnosis)

^TMP("TAX",$J,0)=3 ^TMP("TAX",$J,1,"719.7 ",1)=
       2781001^2791001^329945^4611;ICD9(^
       DIFFICULTY IN WALKING
^TMP("TAX",$J,1,"719.7 ",1,0)=
       719.7^Difficulty in Walking
^TMP("TAX",$J,1,"719.7 ",2)=
       3031001^3131001^329945^4611;ICD9(^
       DIFFICULTY IN WALKING
^TMP("TAX",$J,1,"719.7 ",2,0)=
       719.7^Difficulty in Walking
^TMP("TAX",$J,1,"781.2 ",1)=
       2781001^3131001^48820^5419;ICD9(^
       ABNORMALITY OF GAIT
^TMP("TAX",$J,1,"781.2 ",1,0)=
       781.2^Abnormality of Gait
^TMP("TAX",$J,30,"R26.2 ",1)=
       3131001^^5019306^521502;ICD9(^
       Difficulty in walking, not
       elsewhere classified
^TMP("TAX",$J,30,"R26.2 ",1,0)=
       R26.2^Difficulty in Walking, not
       elsewhere classified
```

5781 Mixed Case – LEXXM

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: DRG GROUPER
                        This API is used by the special lookup ICDEXLK* to
                        display entries to the user for selection.

              USAGE: Controlled Subscri  ENTERED: MAR  8,2012
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine


     ROUTINE: LEXXM
   COMPONENT:  $$MIX(TEXT)
               This API converts text from any form to a modified mix text
               format.  Example:

               Input:
                       arthropathy in behcet's syndrome involving
                       other specified sites

               Traditional Mixed Case (FileMan):

                       Arthropathy In Behcet's Syndrome Involving
                       Other Specified Sites

               Lexicon Mixed Case ($$MIX^LEXXM):

                       Arthropathy in Behcet's Syndrome involving
                       other specified sites

   VARIABLES:  Input     TEXT
                           This is a text string to be converted to mix text.

   VARIABLES:  Output    $$MIX
                           This is a string of text in mixed case.
```

5840 Lexicon ICD-10 Suggestions - LEX10CX

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: ORDER ENTRY/RESULTS REPORTING
                     AUTOMATED INFO COLLECTION SYS
                     PROBLEM LIST
              USAGE: Controlled Subscri  ENTERED: SEP  6,2012
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine

     ROUTINE: LEX10CX
   COMPONENT:  EN
               This entry point is an interactive lookup where the input
               coding system and code are not known.  There is no input
               variables for this API, however, the variable LEXSAB can be
               preset to a coding system (.01 field in file 757.03), else
               wise the user will be prompted for a coding system.  This API
               will display a selection list of suggested ICD-10 codes that
               have a similar textual content as the user selected code and
               coding system.  If no suggestions are available or the user
               does not make a selection, then the user will be prompted for
               a ICD-10 code.  There are two output variables, X and Y.

               Example Output:

                 ICD-9 to ICD-10

                   X="119899^Tobacco Use Disorder^305.1^ICD-9-CM"
                   Y="5003360^Nicotine Dependence, unspecified,
                      Uncomplicated^F17.200^ICD-10-CM"

                 SNOMED CT to ICD-10

                   X="7078519^Diabetes mellitus type 2^44054006^SNOMED CT"
                   Y="5002666^Type 2 Diabetes Mellitus without
                      Complications^E11.9^ICD-10-CM"

   VARIABLES:  Output    X
                           X is a 4 piece "^" delimited string representing
                           the source code.

                             1  Lexicon IEN for file 757.02
                             2  Expression
                             3  Code in selected Coding System
                             4  Coding System nomenclature

                                or null if search fails

   VARIABLES:  Output    Y
                           Y is a 4 piece "^" delimited string representing
                           the target ICD-10 code.

                             1  Lexicon IEN for file 757.02
                             2  Expression
                             3  ICD-10 Diagnostic Code
                             4  ICD-10-CM

                             or -1 if search fails

   VARIABLES:            EN2
   COMPONENT:  EN2(CODE,SAB)
               This entry point is an interactive lookup where the input
               coding system and code are known and supplied as input
               parameters CODE and SAB.  This API will display a selection
               list of suggested ICD-10 codes that have a similar textual
               content as the specified code (CODE) and coding system (SAB).
               If no suggestions are available or the user does not make a
               selection, then the user will be prompted for a ICD-10 code.
               The output for EN2 is the same as entry point EN.

   VARIABLES:  Input     CODE
                           This is a code from the specified coding system.

   VARIABLES:  Input     SAB
                           This is the coding system abbreviation (a three
                           character representation of the coding system
                           taken from the .01 field of the CODING SYSTEMS
                           file 757.03)

   VARIABLES:  Output    X
                           X is a 4 piece "^" delimited string representing
                           the source code.

                             1  Lexicon IEN for file 757.02
                             2  Expression
                             3  Code in selected Coding System
                             4  Coding System nomenclature

                                or null if search fails

   VARIABLES:  Output    Y
                           Y is a 4 piece "^" delimited string representing
                           the target ICD-10 code.

                             1  Lexicon IEN for file 757.02
                             2  Expression
                             3  ICD-10 Diagnostic Code
                             4  ICD-10-CM

                             or -1 if search fails

   COMPONENT:  EN3(CODE,SAB,.ARY,MAX)
               This entry point is a silent lookup for suggested ICD-10 codes
               for a code in another coding system.  The code (CODE) and
               coding system abbreviation (SAB) are passed as input
               parameters.

               This API will create an array of suggested ICD-10 codes that
               have a similar textual content as the specified code (CODE)
               and coding system (SAB).

   VARIABLES:  Input     CODE
                           This is a code in the coding system identified by
                           the input parameter SAB.

   VARIABLES:  Input     SAB
                           This is the coding system abbreviation (a three
                           character representation of the coding system
                           taken from the .01 field of the CODING SYSTEMS
                           file 757.03)

   VARIABLES:  Both      ARY
                           This is a local array, passed by reference:

                             ARY("X")     Input
                             ARY("Y",0)   Output   Number of Suggestions
                             ARY("Y",1)   Output   First Suggestion
                             ARY("Y",n)   Output   nth Suggestion

                             ARY("E")     Error Message

                           Both ARY("X") and ARY("Y",#) are 4 piece "^"
                           delimited strings:

                             1  Internal Entry Number (IEN) file 757.01
                             2  Expression (file 757.01, field .01)
                             3  Code (file 757.02, field 1)
                             4  Nomenclature (file 757.03, field 1)
                                i.e., SNOMED CT, ICD-9-CM or ICD-10-CM

   VARIABLES:  Input     MAX
                           This is the maximum number of suggestions to
                           return in the array (optional, default 100)

           KEYWORDS: ICD-10
                     ICD10
                     LEX10CS
```

6224 UCUM Codes File - ^LEX(757.5)

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: CLINICAL REMINDERS
                     PCE PATIENT CARE ENCOUNTER
              USAGE: Controlled Subscri  ENTERED: AUG 26,2015
             STATUS: Active              EXPIRES:
           DURATION:                     VERSION:
               FILE: 757.5                  ROOT: LEX(757.5,
        DESCRIPTION:                        TYPE: File
   GLOBAL REFERENCE:
     ^LEX(757.5,D0
      This ICR allows packages to point to entries in the UCUM CODES file,
      #757.5.
```

6225 UCUM Codes APIs - LEXMUCUM

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE: CLINICAL REMINDERS
                     PCE PATIENT CARE ENCOUNTER
              USAGE: Controlled Subscri  ENTERED: AUG 26,2015
             STATUS: Active              EXPIRES:
           DURATION:                     VERSION:
        DESCRIPTION:                        TYPE: Routine
   This ICR works in conjunction with ICR #6224 to allow packages to use UCUM
   Codes for storing measurements.


     ROUTINE: LEXMUCUM
   COMPONENT:  UCUMCODES
               Given the internal entry number (IEN) of an entry from the
               UCUM CODES file, #757.5, this entry point returns the UCUM
               Code. Usage:

               $$UCUMCODE^LEXMUCUM(IEN)

   VARIABLES:  Input     IEN
                           This is the internal entry number of an entry from
                           file #757.5.

   COMPONENT:  UCUMDATA
               Given an identifier, which can be the internal entry number
               (IEN), the Description, or the UCUM Code this API returns the
               associated data for the entry. Usage:

                D UCUMDATA^LEXMUCUM(IDEN,.UCUMDATA)

   VARIABLES:  Input     IDEN
                           IDEN identifies the entry from the UCUM Codes
                           file, #757.5, for which to return the associated
                           data. IDEN can be an internal entry number, a
                           Description, or a UCUM Code.
   VARIABLES:  Output    UCUMDATA
                           UCUMDATA is an array, passed by reference, that
                           contains the data associated with the identified
                           entry from the UCUM Codes file #757.5.  The
                           elements of the array are:

                           UCUMDATA(IEN,"COMMENTS") - Comments, if there are
                           any

                           UCUMDATA(IEN,"DESCRIPTION") - Description

                           UCUMDATA(IEN,"IEN") - The internal entry number

                           UCUMDATA(IEN,"ROW") - The row number, from the
                           Table of Examples of UCUM codes for  Electronic
                           Messaging - Version 1.3, on which this entry is
                           found. It can be used to identify the entry to the
                           developers of this table.

                           UCUMDATA(IEN,"UCUM CODE") - The UCUM Code


   COMPONENT:  VERSION
               This API returns the version information for the UCUM CODES
               file, #757.5. Usage:

                 D VERSION^LEXMUCUM(.VERDATA)

   VARIABLES:  Output    VERDATA
                           This array, passed by reference, contains the
                           version information.

                           VERDATA("DATE") - The release date of this version

                           VERDATA("NAME") - The name of this version

                           VERDATA("VERSION") - The version identification
```

6265 Lexicon Expression Extracts - LEXU

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: NOV 16,2015
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine
   Effective upon release of patch LEX*2.0*103.


     ROUTINE: LEXU
   COMPONENT:  $$EXP(IEN)
               This API returns Display Text (.01 field) of the EXPRESSIONS
               file #757.01.

   VARIABLES:  Input     IEN
```

```
                        This is an Internal Entry Number to the
                        EXPRESSIONS file #757.01.

VARIABLES:  Output    $$EXP
                        This is the Display Text taken from the .01 field
                        of the EXPRESSIONS file 757.01.

COMPONENT:  EXPS(IEN,CDT,.ARY)
            This API returns the display text of an expression from the
            EXPRESSIONS ifle #757.01 and active codes associated with the
            expression.

VARIABLES:  Input     IEN
                        This is an Internal Entry Number to the
                        EXPRESSIONS file #757.01.

VARIABLES:  Input     CDT
                        This is the date that will be used to determine
                        whether the code is active or inactive. If not
                        passed, TODAY's date will be used.

VARIABLES:  Both      .ARY
                        Local array passed by reference with the following
                        output format:

                           ARY(IEN)=EXP
                           ARY(IEN,SRC)=COD ^ NOM

                        Where:

                           IEN   Internal Entry number in the EXPRESSION
                                 file 757.01

                           EXP   The Display Text from the EXPRESSION
                                 file 757.01

                           SRC   A Coding System (pointer to CODING
                                 SYSTEMS file 757.03)

                           COD   A code taken from the CODES file 757.02

                           NOM   Coding Nomentclature from the CODING
                                 SYSTEMS file #757.03, examples:

                                   ICD-10-CM
                                   ICD-10-PCS
                                   SNOMED CT

COMPONENT:  $$PREF(COD,SAB,CDT)
            This API returns the preferred term for a code and coding
            system based on date.

VARIABLES:  Input     COD
                        This is a code taken from the CODES file 757.02

VARIABLES:  Input     SAB
                        Source Abbreviation from the .01 field of the
                        CODING SYSTEMS file #757.03.

VARIABLES:  Input     CDT
                        This is the date that will be used to determine
                        whether the code is active or inactive. If not
                        passed, TODAY's date will be used.

VARIABLES:  Output    $$PREF
                        This is a two piece "^" delimited string:

                          IEN ^ EXP

                        Where

                          IEN   This is the Internal Entry Number for the
                                preferred term in file 757.01.

                          EXP   This is the display text of the preferred
                                term in file 757.01

                        or

                          -1    if no preferred term is found for the code

COMPONENT:  $$IENS(CODE,.ARY,CDT)
            This API returns IENs from the Lexicon and National files for
            a code.

VARIABLES:  Input     CODE
                        This is a code from one of the coding systems in
                        the Lexicon.

VARIABLES:  Both      .ARY
                        This is an input/output array passed by reference.
                        It will be killed and rebuilt as follows:

                        Output Local Array ARY

                          ARY(0)   3 Piece "^" delimited string

                             1  Number of Entries in the Lexicon for Code
                             2  Code
                             3  Date used to extract data

                          ARY(#,757)   2 Piece "^" delimited string

                             1  IEN to the MAJOR CONCEPT MAP file #757
                             2  IEN to the Major Concept Expression in
                        File #757.01

                          ARY(#,757.001)   3 Piece "^" delimited string

                             1  IEN to the CONCEPT USAGE file #757.001
                             2  Originating Value
                             3  Frequency

                          ARY(#,757.01)   8 Piece "^" delimited string
```

```
     1  IEN to the EXPRESSION file #757.01
     2  Expression Type
     3  Expression Form
     4  Expression Deactivation Flag
     5  External Expression Type
     6  External Expression Form
     7  External Deactivation Flag
     8  Expression

  ARY(#,757.01,7,CD)   5 Piece "^" delimited
string

     Where CD is a Designation Code

     1  IEN of the DESIGNATION CODE sub-file
#757.118
     2  Pointer to the CODING SYSTEM file #757.03
     3  Pointer to the SNOMED CT HIERARCHY file
#757.018
     4  External nomenclature for CODING SYSTEM
     5  External name of SNOMED CT Hierarchy

  ARY(#,757.02)   5 Piece "^" delimited string

     1  IEN to the CODE file #757.02
     2  Code from CODE file #757.02
     3  Initial Activation Date in the Lexicon
     4  Status in the Lexicon
     5  Status Effective Date in the Lexicon

  ARY(#,757.02,4,EFF)   2 Piece "^" delimited
string

     Where EFF is the effective date for a Status

     1  IEN of the ACTIVATION STATUS subfile
#757.28
     2  STATUS (1=Active, 0=Inactive)

  ARY(#,757.03)   3 Piece "^" delimited string

     1  IEN to the CODING SYSTEM file #757.03
     2  Source Abbreviation from file #757.03
     3  Source Nomenclature from file #757.03

  ARY(#,757.1,#)   6 Piece "^" delimited string
(multiple)

     1  IEN to the SEMANTIC MAP file #757.1
     2  IEN to the MAJOR CONCEPT MAP file #757
     3  IEN to the SEMANTIC CLASS file #757.11
     4  IEN to the SEMANTIC TYPE file #757.12
     5  Semantic Class (external)
     6  Semantic Type (external)

  ARY(#,"VA",SR)   6 Piece "^" delimited string
```

(multiple)

Where SR is a pointer to the CODING SYSTEM file 757.03

```
     1  Variable Pointer to a VA National File 80,
80.1 or 81
     2  Code from VA file
     3  Coding System Nomenclature
     4  Initial Activation Date in the VA file
     5  Status in the VA file
     6  Status Effective Date in the VA file
```

Example

```
  ARY(0)="2^250.01^3150101"
  ARY(1,757)="7006^33586"
  ARY(1,757.001)="7006^4^4"
  ARY(1,757.01)="33586^1^1^^Major Concept^Major
      Concept^^Diabetes Mellitus Type I"
  ARY(1,757.02)="316386^250.01^2781001^0^3041001"
  ARY(1,757.02,4,2781001)="1^1"
  ARY(1,757.02,4,3041001)="2^0"
  ARY(1,757.03)="1^ICD^ICD-9-CM"
  ARY(1,757.1,1)="10167^7006^6^47^Diseases/
      Pathologic Processes^Disease or Syndrome"
  ARY(1,"VA",1)="851;ICD9(^250.01^ICD-9-CM^
      2781001^1^2781001"
  ARY(2,757)="182207^331780"
  ARY(2,757.001)="182207^4^4"
  ARY(2,757.01)="331780^1^1^^Major Concept^Major
      Concept^^Diabetes Mellitus without mention
      of Complication, type i [Juvenile type],
      not stated as Uncontrolled"
  ARY(2,757.02)="327553^250.01^3041001^1^3041001"
  ARY(2,757.02,4,3041001)="1^1"
  ARY(2,757.02,4,3151001)="2^0"
  ARY(2,757.03)="1^ICD^ICD-9-CM"
  ARY(2,757.1,1)="259374^182207^6^47^Diseases/
      Pathologic Processes^Disease or Syndrome"
ARY(2,"VA",1)="851;ICD9(^250.01^ICD-9-CM^
    2781001^1^2781001"
```

VARIABLES: Input CDT

This the Versioning Date (default TODAY) used to extract data.

VARIABLES: Output $$IENS

This is the number of entries found in the Lexicon for Code.

COMPONENT: $$SOS(IEN,.ARY,SYN)

This API returns a local array (passed by reference) of codes for an Expression. If the synonym flag is set to 1 then it will return codes for and expression and its synonyms. These codes may be active or inactive.

```
VARIABLES:  Input     IEN
                        This is an Internal Entry Number to the
                        EXPRESSIONS file #757.01.

VARIABLES:  Both      .ARY
                        Local array passed by reference with the following
                        output format:

                        ARY(IEN)     IEN is from file #757.01 (same as X)
                        ARY(IEN,0)  Number of Codes Found ARY(IEN,#)  # is
                        a sequence number

                          Equals an 13 Piece "^" delimited string

                            1   Code
                            2   Coding System Nomenclature
                            3   Coding System Source Abbreviation
                            4   Code Status
                            5   Code Active Date
                            6   Code Inactive Date
                            7   Expression Status
                            8   Expression Active Date
                            9   Expression Inactive Date
                           10   Expression Variable Pointer
                           11   Code Variable Pointer
                           12   Coding System Variable Pointer
                           13   National File Variable Pointer (if it
                        exist)

                        The array has two indexes:

                        ARY(LEXEIEN,"B",(CODE_"
                        "),#)=Code_"^"_Nomenclature
                        ARY(LEXEIEN,"C",SOURCE,#)=Code_"^"_Nomenclature

VARIABLES:  Output    $$SOS
                        $$SOS returns the number of codes found for an
                        expression, both active and inactive.

VARIABLES:  Input     SYN
                        This is a boolean flag to indicate if codes linked
                        to synonyms to the expression are to be returned.

                          0  Don't return Synonym codes (default)
                          1  Return Synonym codes

COMPONENT:  $$EXM(TEXT,.ARY,DF,MC)
            This API returns IENs in a local array of the Expressions in
            the EXPRESSIONS file #757.01 that match the input text
            exactly.

VARIABLES:  Input     TEXT
                        This is the Text to Search for (required)

VARIABLES:  Both      .ARY
                        This is a local array passed by reference and will
                        contain the IENs of the expressions that match the
```

```
                  input text exactly.

                  LEX(0)   2 piece "^" dilimited string

                           1  Total Exact Matches found
                           2  Text Searched for

                  LEX(#)   5 piece "^" dilimited string

                           1  IEN of Exact Match Expression
                           2  IEN of Major Concept for Expression
                           3  Type of Exact Match Expression
                  (internal)
                           4  Deactivation Flag (internal)
                           5  Type of Exact Match Expression
                  (external)

VARIABLES:  Input     DF
                  This is a Boolean Flag indicating whether to
                  include or exclude Deactivated Terms (optional)

                      1  Include deactivated terms
                      0  Do not include deactivated terms (default)

VARIABLES:  Input     MC
                  This is a Boolean Flag to include Major Concepts
                  only (optional)

                      1  Include Major Concepts ONLY in the array
                      0  Include all expressions found in the array;
                           Major Concepts, Synonyms, Lexical
                           Variants and Fully Specified Names
                           (default)

COMPONENT:  PRF(LEX,LEXVDT,LEXSAB)
```

This API returns a code for a preferred term of a coding system.

It is Similar to $$ONE^LEXU except the expression identified by the input parameter LEX must be a preferred term of the coding system identified by the input parameter LEXSAB and the code must be active on the date identified by input parameter LEXVDT to return a code

It is intended to be used as a filter for screening searches. Example screen using ICD-10-CM:

```
     I $L($$PRF^LEXU(+Y,+($G(LEXVDT))),"10D")
 or
     I $L($$PRF^LEXU(+Y,+($G(LEXVDT))),30)
```

Using the above screen, terms that are not the preferred term in ICD-10-CM (i.e., synonyms, lexical variants or orphan terms) will not be displayed in the selection list during lookup. Only the ICD-10-CM Code Set will be selectable.

```
VARIABLES:  Input     LEX
```

```
                        IEN of the EXPRESSION file 757.01

VARIABLES:  Input     LEXVDT
                        Date to use for screening by codes, if not
                        provided TODAY will be used.

VARIABLES:  Input     LEXSAB
                        Source Abbreviation or a pointer to the CODES file
                        #757.03

VARIABLES:  Output    $$PRF
                        Null    If the IEN is NOT the preferred term of
                                an active code of the specified coding
                                system

                        CODE    If the IEN is the preferred term of an
                                active code of the specified coding
                                system

COMPONENT:  $$SUBSETS(CODE,SRC,.ARY)
            This API returns the names of the subsets for which a code is
            assigned.

VARIABLES:  Input     CODE
                        This is a valid classification code from one of
                        the coding systems in the Lexicon (see the CODING
                        SYSTEMS file #757.03)

VARIABLES:  Both      ARY
                        This is an optional local array passed by
                        reference in the following format:

                          LEX(<sub>) = 4 Piece "^" delimited string

                             1  Subset Name
                             2  Subset Definition IEN file 757.2
                             3  Subset IEN file 757.21
                             4  Expression IEN file 757.01

                        Where <sub> is a three character identifier of a
                        subset, that when appended with a leading "A"
                        becomes the name of the index used for searches.

VARIABLES:  Input     SRC
                        This is coding system for which the code belongs.
                        It can either be the Source Abbreviation (SAB)
                        found in the .01 field of the CODING SYSTEMS file
                        #757.03 or a pointer to the CODING SYSTEMS file
                        #757.03

VARIABLES:  Output    $$SUBSETS
                        This is a 2 or more (variable) Piece "^" delimited
                        string:

                          1  Number of Subsets found
                          2  Subset Identifier #1
                          3  Subset Identifier #2
                          4  Subset Identifier #n

                        Example:

                          $$SUBSET = "4^CLF^DIS^PLS^SCT^"

                          4 Subsets found including CLF, DIS, PLS and SCT
```

6266 Convert Text to Mixed Case - LEXXMC

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: NOV 17,2015
             STATUS: Pending             EXPIRES:
           DURATION: Till Otherwise Agr  VERSION:
        DESCRIPTION:                        TYPE: Routine


     ROUTINE:  LEXXMC
   COMPONENT:  $$MIX(TEXT)
               This API converts text from any form to a modified mix text
               format.  This API replaces an older API $$MIX^LEXXM (ICR 5781)
               which converted text to mix text using hard coded rules found
               in a series of Lexicon namespace routines. This API still uses
               rules to convert text to mixed case but the rules are stored
               in the TOKENS file #757.07 which is much easier to maintain.

               Examples:

                   Input:    arthropathy in behcet's syndrome
                             involving other specified sites

                   Output:   Arthropathy in Behcet's Syndrome
                             involving other specified sites

                   Input:    24 hour esophageal ph study

                   Output:   24 hour Esophageal pH Study

   VARIABLES:  Input     TEXT
                           This is a text string to be converted to mix text.

   VARIABLES:  Output    $$MIX
                           This is a string of text in mixed case.

           KEYWORDS: MIX
                     LEXXMC
                     ICD-10
```

6267 Lexicon Silent Lookup - LEXA

```
  CUSTODIAL PACKAGE: LEXICON UTILITY
SUBSCRIBING PACKAGE:
              USAGE: Supported           ENTERED: NOV 17,2015
```

```
         STATUS: Pending             EXPIRES:
       DURATION: Till Otherwise Agr  VERSION:
    DESCRIPTION:                        TYPE: Routine

  ROUTINE: LEXA
COMPONENT:  LOOK(X,AP,LL,SUB,CDT,SRC,CAT,FMT)
            This entry point is silent and intended to support Graphical
            User Interface (GUI) development. The lookup returns an array
            of information on the expressions found. The lookup includes
            reordering the selection list with the most frequently used at
            the top, and places any exact match at the top of the list.

VARIABLES:  Input     X
                        Equivalent to Fileman's variable X and contains
                        the text to search for.

VARIABLES:  Input     AP
                        This is the aplication or vocabulary
                        identification and may be in the form of a name or
                        a namespace a subset definition in the Subset
                        Definition file (#757.2).

                        Included in this application/vocabulary definition
                        are a number of defaults which assist in searching
                        the Lexicon.  Defaults may include:

                          Global root, index, filter, display, vocabulary,
                          user default flag, overwrite user default flag,
                          and the unresolved narrative flag.

                        Values for this parameter can be found in either
                        the "AN" or "AA" cross-reference of the Subset
                        Definition file (#757.2).

                        Examples:

                          Application ("AN" Index)      Namspace
                          -----------                   --------
                          Lexicon                         LEX
                          Problem List                    GMPL
                          ICD Diagnosis                   ICD
                          CPT Procedures                  CPT
                          Mental Health                   DSM
                          ICD, CPT, and DSM Terminology   VAC
                          Radiology                       RA

                          Vocabularies ("AA" Index)     Namspace
                          ------------                  --------
                          Main Word Index                 WRD
                          Clinical Findings Index         CLF

VARIABLES:  Input     LL
                        This is a numeric value which controls the
                        returning list length in the local array
                        LEX("LIST").  The default value for this parameter
                        when not supplied is five (5).
```

```
VARIABLES:  Input     SUB
                        This parameter is a mnemonic representing the
                        subset to use during the search.  These subsets
                        are defined in the Subset Definition file (#757.2)
                        and can be found in either the AA or AB
                        cross-reference.  The subset may have default
                        values set that are different from the controlling
                        application or vocabulary.

                        Examples:

                          Vocabularies ("AA" Index)     Namspace
                          ------------                  --------
                          Main Word Index                 WRD
                          Clinical Findings Index         CLF
                          SNOMED CT                       SCT

                          Subsets ("AB" Index)          Namspace
                          -------                       --------
                          ICD-10-CM                       10D
                          CPT-4/HCPCS                     CHP
                          Encounter Forms #2              EF2
                          DSM-IV                          DSM
                          Problem List #1                 PL1

VARIABLES:  Input     CDT
                        This is a date in Fileman format used to check if
                        a code is active or inactive on a specified date.
                        If not supplied, it will default to TODAY.  Only
                        active codes can be displayed and returned during
                        a lookup.

VARIABLES:  Input     SRC
                        This is a source of a vocabulary taken from the
                        Source file #757.14.  When present, only terms
                        attributed to that source will be returned.

                        Examples:

                        Breast Imaging Reporting and Data System (BI-RADS)
                        Atlas (ACR) Mammography Quality Standards Act of
                        1992 (MQSA) Automated Service Connected
                        Designation (ASCD)

VARIABLES:  Input     CAT
                        This is the category of a source of a vocabulary
                        taken from the Category file 757.13.  When
                        present, only terms attributed to that category
                        will be returned.

                        Examples:

                        Breast Imaging Reporting and Data Systems MRI
                        Ultrasound Mammography MRI Assessment Categories
                        Ultrasound Assessment Categories Mammography
                        Assessment Categories
```

```
VARIABLES:  Input     FMT
                        This is the preferred output format.

                           0  Default, Display Text

                                LEX("LIST",1)="5019187^Mouth Breathing
                                               (ICD-10-CM R06.5)"

                           1  Parsed Format

                                LEX("LIST",1)="5019187^Mouth Breathing"
                                LEX("LIST",1,30)="R06.5^ICD-10-CM^
                                                  521361;ICD9("

VARIABLES:  Output    TMP
                        ^TMP temporary global arrays:

                          ^TMP("LEXFND",$J,<freq>,<ien>)

                          This global array contains all of the entries
                          found during the search.  The <freq> is a
                          negative number based on the frequency of use
                          for a given term.  <ien> is the internal entry
                          number in the Lexicon Expression file (757.01).

                          ^TMP("LEXHIT",$J,<seq>)

                          This global array contains the entries reviewed
                          by the user.  The Lexicon Utility reorders the
                          list based on frequency of use and assigns a
                          sequence number representing where on the list
                          this entry is located.

VARIABLES:  Output    LEX
                        LEX("LIST")

                        This local array contains only those entries on
                        the list which are currently being reviewed by the
                        user.  The third parameter to the look-up defines
                        the length of this list.

        KEYWORDS: LEXA
                  LOOK
                  ICD-10
```