



# **Health Data & Informatics (HDI) Data Standardization Toolset**

VERSION 1.1

## **Technical Manual and Package Security Guide**

*October 10, 2005*

Veterans Health Administration  
Office of Information  
Health Data & Informatics

# Revision History

Table 1, below, summarizes this document’s revision history.

Date	Revision	Description	Author(s)
May 2005	1.0	Initial VHA version of HDI.	Data Standardization
October 10, 2005	1.1	Added the appropriate VHA directive number in place of “pending directive #” in sections 1.1 and 12.1.	Data Standardization

**Table 1: Technical Manual and Package Security Guide Revision History**

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# 1. Introduction

This technical manual describes the Health Data & Informatics (HDI) 1.0 package. This document is intended to assist Information Resources Management (IRM) and Enterprise VistA Support (EVS) staff.

This document provides a general overview of the standardization process, which includes development efforts from three other teams: XU\*8.0\*299, XT\*7.3\*93, and GMRV\*5.0\*8. Additional documentation for the other development efforts is separately available.

## 1.1 Data Standardization

The Health Data Informatics (HDI) package provides a basic method for seeding VHA Unique Identifiers (VUIDs) for reference data in existing VistA applications. A VUID is a meaningless number, which is automatically assigned to concepts, properties, and relationships in a terminology to facilitate their access and manipulation by computers.

The HDI package will be used by each VistA site to seed VUIDs in their existing global files that contain reference data, such as drug names, names of known allergens, and so forth. These files have been grouped into domains, and each domain will be standardized separately. As each domain's files are originally standardized, the HDI package is used to assign a VUID to each term or concept in the file. Subsequent standardization updates and maintenance on these files will be handled separately by the New Term Rapid Turnaround (NTRT) program.

Installation of this package anticipates the installation of domain-specific application patches, applied to any application(s) that make use of the standardized reference data files.

Requirements documentation for each affected domain is separately available from Data Standardization. These application patches (e.g. GMRV\*5.0\*8) will, in general terms: change the data dictionary and global files to prevent modification of data; and modify existing data dictionary files to add additional fields, including the VUID field and fields for determining the current status of a term. The application patches will also modify user interfaces (both graphical and roll-and-scroll) to screen out all reference data whose status is 'not active.' Once these changes are in place, the application patch makes a procedure call to the HDI package, instructing it to seed the VUIDs and statuses for each reference term.

Once the Application Patch has been installed for the Data Domain, the Application post-initialization routine calls an API in the HDI package which creates an XML file for each of the files being standardized. The XML file includes the Term/Concept (.01 Field) from each of the files. Each XML file is then forwarded to the central server, FORUM. On the FORUM server, the XML file is compared with the standardized data from Enterprise Terminology Services (ETS). The data received from the facility is modified as follows: (1) FORUM sets a VUID value for every matching entry; (2) any unmatched local entries are assigned a VUID from a block of available numbers, and identified as inactive terms; and (3) any duplicate entries are identified as inactive terms. This information is then passed back to the facility as an XML file, which is used by the HDI package on the Facility Server to update the VistA files.

Once the Facility's VistA files have been updated, a MailMan mail message is automatically sent to the Enterprise Reference Terminology (ERT) team. The ERT team will manually initiate a

Master File Server (MFS) push through the Vitria Interface Engine (VIE), which will complete the file update with data for additional fields not modified by the HDI package. This ERT update relies on VUIDs as a key for inserting the standardized data. At this point, the facility is considered standardized for that particular VistA file.

Once the Facility's VistA file is standardized, the Application patch may optionally invoke a post-processing routine through MFS—for example if there is a need to perform any necessary cleanup tasks on the standardized file. When the post-processing routine completes its processing, or if there was no post-processing routine, the Health Data Repository (HDR) Implementation managers are notified automatically via another MailMan message. This message notifies HDR that the site is ready to have VistA Data Extraction Framework (VDEF) triggers turned on, which enables communication between the Facility's VistA Server and the HDR/IMS database.

Implementation of this package is required by VHA Directive 2005-044.

## 1.2 Reference Materials

Readers who wish to learn more should consult the following:

- VUID Planning Requirements Document from Enterprise Reference Terminology (ERT): <http://tspr.vista.med.va.gov/warboard/ProjectDocs/ERT/VUID%20Server%20plan.doc>
- Data Standardization Project Website: [http://vaww.infoshare.va.gov/Data\\_Standardization/default.aspx](http://vaww.infoshare.va.gov/Data_Standardization/default.aspx)
- The NTRT Program website. This website allows users to submit new terms to be included in the national standard. The website also features a user guide that provides instructions for submitting a new term: <http://vista.med.va.gov/ntrt/>
- The VistA documentation library has more detailed information about all aspects of VistA. Readers may be especially interested in documentation about the MFS, Kernel and Kernel Toolkit patches, which are involved in the Data Standardization process: <http://www.va.gov/vdl/>
- More specific documentation is available about the Data Standardization APIs in the Kernel Toolkit patch. Look for links to this documentation under the heading "Data Standardization" at the following website: <http://vista.med.va.gov/kernel/apis/index.shtml>

Documentation is made available online, on paper and in Adobe Acrobat Portable Document Format (PDF). A PDF must be read using the Adobe Acrobat Reader (i.e., ACROREAD.EXE), which is freely distributed by Adobe Systems, Incorporated at the following Web address:

<http://www.adobe.com/>



For more information on the use of the Adobe Acrobat Reader, please refer to the "Adobe Acrobat Quick Guide" also available at the Adobe Web address above.



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## 2. Implementation and Maintenance

The following items constitute the recommended system maintenance for the HDI package.

### 2.1 Post Installation

After installation, the routine HDI1000A will be automatically run to post system configuration information in the HDIS SYSTEM and HDIS PARAMETER files.

### 2.2 Site Parameters

The configuration information contained in the HDIS SYSTEM and HDIS PARAMETER files is used to correctly send and receive data from a centralized server. Information contained in these files should not be edited.

### 2.3 Archiving and Purging

There are no archiving or purging capabilities in the HDI 1.0 package.

## 3. Files

This section describes the data elements and VistA field locations needed for VUID seeding for data standardization.

### 3.1 Data Elements

The following files belong to this package. The following sections describe each file in more detail.

<b>Number</b>	<b>Name</b>	<b>Description</b>
7115.1	HDIS DOMAIN	This file contains the Domains, which are a subset of medicine, a natural grouping of clinical acts (e.g., demographics, vital signs, laboratory, pharmacy), and the VistA File/Fields associated with the Domain.  Data is distributed with this file.

Number	Name	Description
7115.3	HDIS XML TEMPLATE	This file contains the name of the XML template, to identify which XML schema the template relates to. Data is distributed with this file.
7115.5	HDIS STATUS	This file contains the different status codes used by Data Standardization processes. Data is distributed with this file.
7115.6	HDIS FILE/FIELD	This file contains the VistA File and Field numbers. Data is distributed with this file.
7118.11	HDIS TERM/CONCEPT VOID ASSOCIATION	This file contains the association of a Term/Concept and its VUID and Activation Status as defined by ERT.  No data is distributed with this file.
7118.21	HDIS SYSTEM	This file contains the system-related information for a facility. It points to the institution file (file 4).  No data is distributed with this file.
7118.22	HDIS FACILITY TERM/CONCEPT ASSOCIATION	This file contains the term or concept assigned to a VistA File or Field Internal Entry Number (IEN) at a Facility by the Data Standardization VUID Implementation Process.  No data is distributed with this file.
7118.25	HDIS VUID IMPLEMENTATION STATUS	This file contains the Status of the VUID Implementation Process for a VistA File/Field at a Facility.  No data is distributed with this file.
7118.29	HDIS PARAMETER	This file contains different parameters used by Data Standardization processes.  No data is distributed with this file.

**Table 2: Data Standardization FileMan Files**

### 3.1.1 HDIS DOMAIN File

**File Name/Number:** HDIS Domain file (#7115.1)

**Global:** ^HDIS(7115.1,

**System Location:** Client (Facility) and Server (Central)

This file contains the Domains, which are a subset of medicine, a natural grouping of clinical acts (e.g., demographics, vital signs, laboratory, and pharmacy) and the VistA File/Fields

associated with the Domain.

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Domain</b> A subset of medicine, a natural grouping of clinical acts (e.g., demographics, vital signs, laboratory, pharmacy).	7115.1,.01	DOMAIN	0;1	Free Text	3-30 Required
<b>File/Field</b>	7115.1.10	FILE/FIELD	FILE	N/A	Multiple Sub-file #7115.11
<b>File/Field</b> The File/Field associated with the record.	7115.11,.01	FILE/FIELD	0;1	Pointer	HDIS File/Field file (#7115.6) Required

**Cross-references:**

Type	Name	Fields(s)
Regular	“B”	Domain (#.01)
Regular	“B”	File/Field (7115.11,#.01)

### 3.1.2 HDIS XML Template

**File Name/Number:** HDIS XML Template file (#7115.3)

**Global:** ^HDIS(7115.3,

**System Location:** Client (Facility) and Server (Central)

This file contains XML schema templates which are used to create XML documents. It identifies the entities, their sequence in the document, and whether they are required or optional.

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Name</b> Name of the XML Template. Identifies which XML schema the template relates to.	7115.3,.01	NAME	0;1	Free Text	3-30 Required
<b>XML Version</b> Identifies what version of XML this XML message will use.	7115.3.1	XML VERSION	0;2	Number	1-99 4 decimal digits Required
<b>Encoding</b> Defines the encoding which will be used when creating the XML message. Normally this is set to UTF-8.	7115.3.2	ENCODING	0;3	Free Text	1-20 Required
<b>Primary Element</b> Identifies the primary element in the XML schema.	7115.3.3	PRIMARY ELEMENT	0;4	Free Text	3-30 Required



<b>Element</b>	<b>VISTA Field Location</b>				
<b>Description</b>	<b>File/Field</b>	<b>Name</b>	<b>Location</b>	<b>Data Type</b>	<b>Definition</b>
<p><b>Element Number</b> Each element (line) in the XML message is assigned an element number. The elements are processed by this number, so this data determines the sequence of data for the XML message.</p>	7115.3,4	ELEMENT NUMBER	SEQ;0	N/A	Multiple Sub-file #7115.34
<p><b>Element Number</b> This field contains a numerical number which is used to determine the sequence of data for the output XML document.</p>	7115.34,.01	ELEMENT NUMBER	0;1	Number	1-9999 3 Decimal digits Required
<p><b>Element Name</b> The name of the element which will be included in the XML document when created.</p>	7115.34,.02	ELEMENT NAME	0;2	Free Text	2-30 Required
<p><b>Element Required</b> This field is used to define whether this element is required for the output XML document. If set to "Required," the element is included whether or not data exists for that element. If set to "Not Required," the element will not be included in the XML document if there is no data related to the element.</p>	7115.34,.03	ELEMENT REQUIRED	0;3	Set	1= Required Required
<p><b>Level</b> This field defines what level the element is. This field is used when determining indentation of element names for ease of reading.</p>	7115.34,.05	LEVEL	0;5	Number	0-20 Required
<p><b>Has Children</b> If this field is set to "Has Children," then the program logic knows there is no data related to this element, and that only the element name needs to be formatted. If this field is set to "No," the program knows data is expected for this element.</p>	7115.34,.06	HAS CHILDREN	0;6	Set	1=Has Children
<p><b>Is Multiple</b> This field indicates whether the element can have multiple entries, or is a single value. For example, a Social Security Number element would not be a multiple, whereas description would have multiple lines.</p>	7115.34,.07	IS MULTIPLE	0;7	Set	1= Multiple

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Indentation</b> Used to define the number of spaces for each element indentation. The level indicator is multiplied by the indentation field. This field can be set to zero, so that no indentation occurs.	7115.3,5	INDENTATION	0;5	Number	0-10 Required

**Cross-references:**

Type	Name	Fields(s)
Regular	“B”	NAME
Regular	“B”	ELEMENT NUMBER

### 3.1.3 HDIS STATUS file

**File Name/Number:** HDIS Status (#7115.5)

**Global:** ^HDIS(7115.5,

**System Location:** Client (Facility) and Server (Central)

This file contains the different status codes used by Data Standardization processes.

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Status</b> Status name/text.	7115.5,.01	STATUS	0;1	Free Text	1 to 80 characters long Required
<b>Status Code</b> Code representing the status.	7115.5,.02	STATUS CODE	0;2	Free Text	1 to 4 characters long Required Un-editable Identifier
<b>Status Type</b> Denotes where/how the status is used.	7115.5,.03	STATUS TYPE	0;3	Set of Codes	1 = CLIENT 2 = SERVER Required Un-editable Identifier
<b>Status Description</b> Description of the status and/or its use.	7115.5,1	STATUS DESCRIPTION	1	Word Processing	

**Cross-references:**

Type	Name	Fields(s)
Regular	“B”	Status (#.01)
Regular	“C”	Status Code (#.02)
Compound	“AC”	Status Type (#.03), Status Code (#.02)

### 3.1.4 HDIS FILE/FIELD File

**File Name/Number:** HDIS FILE/FIELD file (#7115.6)

**Global:** ^HDIS(7115.6,

**System Location:** Client (Facility) and Server (Central)

This file contains the File/Fields in VistA.

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>File/Field Name</b> The File/Field Name associated with a VistA File/Field combination.	7115.6,.01	FILE/FIELD NAME	0;1	Free Text	1-100 Characters Required Un-editable
<b>File Number</b> The File Number assigned to the file in VistA.	7115.6,.02	FILE NUMBER	0;2	Free Text	1-30 Characters Required Un-editable
<b>Field Number</b> The Field Number assigned to the field in VistA.	7115.6,.04	FIELD NUMBER	0;4	Free Text	1-30 Characters  Required Un-editable

#### Cross-references:

Type	Name	Fields(s)
Regular	“B”	File/Field Name (#.01)
Compound	“AFIL”	File Number(#.02), Field Number (#.04)

### 3.1.5 HDIS TERM/CONCEPT VUID ASSOCIATION File

**File Name/Number:** HDIS Term/Concept VUID Association file (#7118.11)

**Global:** ^HDISV(7118.11,

**System Location:** Server (Central)

This file contains the association of a Term/Concept and its VUID and Activation Status as defined by Enterprise Reference Terminology (ERT).

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Term/Concept</b> A Term is any string. A Concept is an abstract expression of a meaning. A concept may have multiple expressions. For instance, the concept of blood pressure can be expressed as hypertension or high blood pressure.	7118.11,.01	TERM/CONCEPT	0;1	Free Text	1-245 Required

Element Description	VISTA Field Location				
	File/Field	Name	Location	Data Type	Definition
<b>Date/Time Created</b> The date and time the record is created by HDIS during VUID Implementation. It will not be set if the VUID is assigned by ERT.	7118.11,1.01	DATE/TIME CREATED	1;1	Date/Time	
<b>National Standard Flag</b> The Term/Concept is part of the national standard.	7118.11,1.02	NATIONAL STANDARD FLAG	1;2	Set of Codes	1=YES 0=NO Required Un-editable
<b>File/Field</b>	7118.11,10	FILE/FIELD	FILE	N/A	Multiple Sub-file #7118.13
<b>File/Field</b> The File/Field associated with the record.	7118.13,.01	FILE/FIELD	0;1	Pointer	HDIS File/Field file (#7115.6) Required
<b>VUID</b> VHA Unique ID (VUID). A unique meaningless integer assigned to reference terms VHA-wide.	7118.11,99.99	VUID	VUID;1	Free Text	1-20 Characters Required Un-editable  Input Transform: S X=+X K:\$L(X)>20!(\$L(X)<1!) '(X?1.20N) X
<b>Effective Date/Time</b> Describes the pair Status and Effective Date/Time for each reference term.	7118.12,99.991	EFFECTIVE DATE/TIME	TERMSTATUS	N/A	Multiple Sub-file #7118.12
<b>Effective Date/Time</b> This is the date/time when the Status of the reference term was established.	.01	EFFECTIVE DATE/TIME	0;1	Date/Time May Include Time and Seconds	Required Un-editable
<b>Status</b> The Status of a reference term is either "active" or "inactive." If "active," then the term will be accessible by end-users to document a particular patient event. If "inactive," then the term will only be accessible by the application to display legacy data.	.02	STATUS	0;2	Set of Codes	1=ACTIVE 0=INACTIVE Required Un-editable

### Cross-references:

Type	Name	Fields(s)
Regular	"B"	Term/Concept (#.01)
Regular	"B"	Effective Date/Time (Sub-file #7118.12,#.01)
Regular	"B"	File/Field (Sub-file #7118.13,#.01)
Regular	"AVUID"	VUID (#99.99)

Type	Name	Fields(s)
Regular (whole file)	“AC”	File/Field (Sub-file #7118.13,#.01)

### 3.1.6 HDIS SYSTEM File

**File Name/Number:** HDIS System file (#7118.21)

**Global:** ^HDISF(7118.21,

**System Location:** Server (Central)

This file contains the system-related information for a facility.

The following table contains the data elements being added to VistA for this file:

Element Description	VISTA Field Location				
	File/Field	Name	Location	Data Type	Definition
<b>Facility</b> The VA Medical Center associated with the system.	7118.21,.01	FACILITY	0;1	Pointer	Institution file (#4) Required
<b>Domain/IP Address</b> The Domain/IP Address associated with the system.	7118.21,.02	DOMAIN/IP ADDRESS	0;2	Free Text	1-70 Characters Required Identifier
<b>Type</b> The Type of system.	7118.21,.03	TYPE	0;3	Set of Codes	0=TEST 1=PRODUCTION Required

#### Cross-references:

Type	Name	Fields(s)
Regular	“B”	Facility (#.01)
Compound	“ATYP”	Type (#.03), Facility (#.01)

### 3.1.7 HDIS FACILITY TERM/CONCEPT ASSOCIATION File

**File Name/Number:** HDIS Facility Term/Concept Association file (#7118.22)

**Global:** ^HDISF(7118.22,

**System Location:** Server (Central)

This file contains the Term or Concept assigned to a VistA File or Field IEN at a Facility (VAMC) by the Data Standardization VUID Implementation Process.

The following table contains the data elements being added to VistA for this file:

Element Description	VISTA Field Location				
	File/Field	Name	Location	Data Type	Definition
<b>System</b> The system that sent the record.	7118.22,.01	SYSTEM	0;1	Pointer	HDIS System file (#7118.21) Required
<b>File/Field</b> The File/Field associated with the record.	7118.22,.02	FILE/FIELD	0;2	Pointer	HDIS File/Field file (#7115.6) Required Un-editable

Element Description	VISTA Field Location				
	File/Field	Name	Location	Data Type	Definition
<b>Internal Reference</b> The Internal Reference at the VAMC that sent the record. Could be an IEN or the internal value for a set of codes.	7118.22,.03	INTERNAL REFERENCE	0;3	Free Text	1-50 Characters Required Un-editable
<b>Term/Concept</b> A term is any string. A concept is an abstract expression of a meaning. A concept may have multiple expressions. For instance, the concept of blood pressure can be expressed as hypertension or high blood pressure.	7118.22,.04	TERM/CONCEPT	0;4	Pointer	HDIS Term/Concept VUID Association file (#7118.11) Required Un-editable
<b>Date/Time Associated</b> The date and time the record is assigned to the Term/Concept.	7118.22,.05	DATE/TIME ASSOCIATED	0;5	Date/Time	Required Un-editable

**Cross-references:**

Type	Name	Fields(s)
Regular	“B”	System (#.01)
Compound	“AC”	System (#.01), File/Field (#.02)
Compound	“AS”	System (#.01), File/Field (#.02), Term/Concept (#.04)

### 3.1.8 HDIS VUID IMPLEMENTATION STATUS File

**File Name/Number:** HDIS VUID Implementation Status file (#7118.25)

**Global:** ^HDISF(7118.25,

**System Location:** Client (Facility) and Server (Central)

This file contains the Status of the VUID Implementation Process for a VistA File/Field at a Facility.

The following table contains the data elements being added to VistA for this file:

Element Description	VISTA Field Location				
	File/Field	Name	Location	Data Type	Definition
<b>System</b> The Facility being processed.	7118.25,.01	SYSTEM	0;1	Pointer	HDIS System file (#7118.21) Required
<b>File/Field</b> The File/Field associated with the record.	7118.25,.02	FILE/FIELD	0;2	Free Text	HDIS File/Field file (#7115.6) Required Un-editable
<b>Status</b> This indicates the status of the VUID implementation process for the Facility, domain and file/field.	7118.25,.03	STATUS	0;3	Pointer	HDIS Status file (#7115.5) Required Un-editable

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>Status Date/Time</b> The date/time that this status was entered.	7118.25,.04	STATUS DATE/TIME	0;4	Date/Time	Required Un-editable

#### Cross-references:

Type	Name	Fields(s)
Regular	“B”	System (#.01)
Compound	“AFAC”	System (#.01), File/Field (#.02), Status Date/Time (#.04), Status (#.03)

### 3.1.9 HDIS PARAMETER File

**File Name/Number:** HDIS Parameter (#7118.29)

**Global:** ^HDISF(7118.29,

**System Location:** Client (Facility) and Server (Central)

This file contains different parameters used by Data Standardization processes.

The following table contains the data elements being added to VistA for this file:

Element	VISTA Field Location				
Description	File/Field	Name	Location	Data Type	Definition
<b>System</b> The Facility that the parameter values refer to.	7118.29,.01	SYSTEM	0;1	Pointer	HDIS System file (#7118.21)  Required
<b>System Type</b> Denotes type of system.	7118.29,.02	SYSTEM TYPE	0;2	Set of Codes	1 = Client 2 = Server
<b>Disable VUID Activity</b> Flag denoting if all VUID related activity should be disabled.	7118.29,11	DISABLE VUID ACTIVITY	1;1	Set of Codes	0 = No 1 = Yes
<b>VUID Server Location</b> Where the VUID Server is located.	7118.29,12	VUID SERVER LOCATION	1;2	Free Text	1 to 100 characters long.
<b>VUID Server Connection Type</b> Type of connection used to communicate with VUID Server.	7118.29,13	VUID SERVER CONNECTION TYPE	1;3	Set of Codes	1 = MailMan
<b>VUID Server Option</b> Name of the MailMan server type option that message should be forwarded to.	7118.29,21	VUID SERVER OPTION	2;1	Free Text	1 to 30 characters long.
<b>Disable Status Updates</b> Flag denoting if sending of status update messages to the Status Server should be disabled.	7118.29,31	DISABLE STATUS UPDATES	3;1	Set of Codes	0 = No 1 = Yes
<b>Status Server Location</b> Where the Status Server is located.	7118.29,32	STATUS SERVER LOCATION	3;2	Free Text	1 to 100 characters long

Element	VISTA Field Location				
	Description	File/Field	Name	Location	Data Type
<b>Status Server Connection Type</b> Type of connection used to communicate with the Status Server.	7118.29,33	STATUS SERVER CONNECTION TYPE	3;3	Set of Codes	1 = MailMan
<b>Status Server Option</b> Name of the MailMan server type option that message should be forwarded to.	7118.29,41	STATUS SERVER OPTION	4;1	Free Text	1 to 30 characters long.
<b>Last Non-Standard VUID</b> Last non-standard VUID assigned by the centralized VUID Server.	7118.29,51	LAST NON-STANDARD VUID	5;1	Free Text	1 to 18 characters long.
<b>Ending Non-Standard VUID</b> Last non-standard VUID that can be assigned by centralized VUID Server.	7118.29,52	ENDING NON-STANDARD VUID	5;2	Free Text	1 to 18 characters long.

### Cross-references:

Type	Name	Fields(s)
Regular	"B"	System (#.01)

## 3.2 Package Default Definition

The following screen capture shows the HDI package's default definition.

```

PACKAGE: HEALTH DATA & INFORMATICS 1.0      Feb 23, 2005 5:09 pm      PAGE 1
-----
TYPE: SINGLE PACKAGE
TRACK NATIONALLY: YES
NATIONAL PACKAGE: HEALTH DATA & INFORMATICS
DESCRIPTION:
The Health Data & Informatics package.

ENVIRONMENT CHECK :                               DELETE ENV ROUTINE: No
PRE-INIT ROUTINE :                               DELETE PRE-INIT ROUTINE: No
POST-INIT ROUTINE : POST^HDI1000A                DELETE POST-INIT ROUTINE: No
PRE-TRANSPORT RTN :

                                UP    SEND  DATA                                USER
                                DATE  SEC.  COMES  SITE                                RSLV  OVER
                                DD    CODE  W/FILE DATA                                PTS  RIDE
-----
7115.1    HDIS DOMAIN                                YES  YES  YES  OVER  NO  NO
7115.3    HDIS XML TEMPLATE                        YES  YES  YES  OVER  NO  NO
7115.5    HDIS STATUS                              YES  YES  YES  OVER  NO  NO
7115.6    HDIS FILE/FIELD                          YES  YES  YES  OVER  NO  NO
7118.11   HDIS TERM/CONCEPT VUID ASSOCIATIONYESYES NO
7118.21   HDIS SYSTEM                                YES  YES  NO
7118.22   HDIS FACILITY TERM/CONCEPT ASSOCIATION
                                YES  YES  NO
7118.25   HDIS VUID IMPLEMENTATION STATUS
                                YES  YES  NO

```



7118.29	HDIS PARAMETER	YES	YES	NO
---------	----------------	-----	-----	----

## 4. Global Translation and Journaling

The following file should be journaled: HDIS VUID Implementation Status #7118.25. No other file requires journaling.

There are no translation requirements.

## 5. Routines

The following routines are included in this Package:

HDI1000A	HDISVCFX	HDISVF09*
HDI1000B	HDISVCMR	HDISVF10
HDI1000C	HDISVCUT	HDISVM00
HDI1000D	HDISVF01*	HDISVM01
HDI1000E	HDISVF02*	HDISVM02
HDI1000F	HDISVF03*	HDISVS00
HDI1000G	HDISVF04*	HDISVS01
HDISVAP	HDISVF05*	HDISVS02
HDISVC00	HDISVF06*	HDISVS03
HDISVC01	HDISVF07*	HDISVSFX
HDISVC02	HDISVF08*	HDISVU01
		HDISXML

\* APIs.

See “Callable Routines, Entry Points and APIs” for a detailed description of APIs. For information about other routines, run XUPRROU (List Routines). This command prints a list of the HDIS routines. This option is found on the XUPR-ROUTINE-TOOLS menu on the XUPROG (Programmer Options) menu, which is a sub-menu of the EVE option (Systems Manager menu).

```
Select Systems Manager Menu Option: programmer
Options
Select Programmer Options Option: routine tools
Select Routine Tools Option: list routines
Routine Print
Want to start each routine on a new page: No// [ENTER]
Routine(s) ? > HDI*
```

The first line of each routine contains a brief description of the general function of the routine. Use the Kernel option XU FIRST LINE PRINT (First Line Routine Print) to print a list of just the first line of each HDI subset routine.

```
Select Systems Manager Menu Option: programmer Options
Select Programmer Options Option: routine tools
Select Routine Tools Option: First Line Routine Print
PRINTS FIRST LINES
Routine(s) ? > HDI*
```

## 6. Exported Options

The following options are delivered with this package:

Option Name	Menu Text	Parent Option
HDIS-FACILITY-DATA-SERVER	HDIS FACILITY DATA SERVER	None
HDIS-STATUS-UPDATE-SERVER	HDIS STATUS UPDATE SERVER	None

## 7. Exported RPCs

There are none.

## 8. Other Software Elements

There are no print, sort, input or list templates in HDI 1.0.

HDI 1.0 includes four bulletins.

Bulletin Name	Description
HDIS Errors	Notification of an error occurring during HDIS VUID processing.
HDIS Notify ERT	Notifies the ERT mailgroup that a site needs file update for specific domain.
HDIS Notify HDR	Notifies HDR personnel that a file at a specific site is ready for activation of the HDR Triggers.
HDIS XML Msg Process Error	Bulletin is generated when a problem occurs during processing of a received XML encoded message.

*Table 3: Other Software Elements: Bulletins*

HDI 1.0 includes three mail groups: HDIS Errors, HDIS ERT Notification and HDIS HDR Notification. These groups are described in more detail in the section, “Mail Groups and Alerts.”

## 9. Callable Routines, Entry Points and APIs

The following supported reference calls allow other packages to access HDI Package calls.

### 9.1 VUID Seeding Initiation

Name: EN^HDISVCMR

Integration Agreement Number: 4639

Description: Initiates the VUID seeding process.

Calling Syntax EN^HDISVCMR([HDISDOM],[HDISFILE])

Return Value None.

Input	Output
HDISDOM - IEN for the HDIS Domain file. HDISFILE – Specific file number to be seeded (optional). If this value is null, all domain files will be seeded.	None.

### 9.2 Display NTRT Message Text

Name: NTRTMSG^HDISVAP

Integration Agreement Number: 4638

Description: Displays a message that tells the user how to enter a new term using the New Term Rapid Turnaround process (NTRT) being provided by ETS. The message text can optionally be returned in an array.

Calling Syntax NTRTMSG^HDISVAP(HDISARYF,)

Return Value: NTRT message text.

Input	Output
HDISARYF - Return Text in an Array Flag (Optional). Defaults to 0. 1=Yes 0=No	If set to yes, an array containing the NTRT message is returned, otherwise, the message is displayed on the screen. The output variable is assumed to be null when the API is invoked.

### 9.3 Get the HDIS Domain File IEN

Name: \$\$GETIEN^HDISVF09

Integration Agreement Number: 4651

Description: Get an IEN from the HDIS Domain file.

Calling Syntax        \$\$GETIEN^HDISVF09([HDISDOM],[HDISDIEN])

Return Value         1= Successful and 0=Failure.

Input	Output
HDISDOM – Domain	HDISDIEN – IEN from HDIS Domain file (#7115.1)

## 9.4 Set VUID Implementation Status to Complete

Name: MFSUP^HDISVF09

Integration Agreement Number: 4651

Description: Updates MFS toggle with the information that the ERT update has been completed and the patched files (those files that have VUID fields) should be used. This API should be invoked in the Post-Processing Logic field in the Master File Parameter file (#4.001) for the file being standardized. The API updates the status of the file to “VUID Implementation Completed” and sends out the HDR activation bulletin to the HDIS HDR Notification MailMan group.

Calling Syntax        MFSUP^HDISF09([HDISFILE],[HDISERR],[HDISFN])

Return Value         None.

Input	Output
HDISFILE – File number of the file updated with VUIDs. HDISERR – Error indicator from MFS (1 or 0). HDISFN – Field number (optional).	None.

## 9.5 Get VUID Implementation Status

Name: \$\$GETSTAT^HDISVF01

Integration Agreement Number: 4640

Description: Returns implementation status for requested file/field.

Calling Syntax        \$\$GETSTAT^HDISVF01(File,Field,[Date],[Fac],[Domain],[Type])

Return Value         1= Successful and 0=Failure

Input	Output
File - File number	StatusCode ^ StatusPointer ^
Field - Field number (defaults to .01)	StatusDate
Date – The FileMan date/time to return status for (optional; defaults to NOW). If time is not included with the date, the last status for the given day is returned.	StatusCode - Code representing status – refer to listing of entries in HDIS STATUS file (#7115.5) for range of values.
Fac - Facility number (optional – defaults to current facility).	StatusPointer - Pointer to HDIS STATUS file (#7115.5).
Domain – Domain/IP Address (optional – defaults to current).	StatusDate - FileMan date/time.
Type – Type of system (optional, defaults to current). 0= Test 1=Production	Notes: <ul style="list-style-type: none"><li>• Values for “not started” status and no date are returned on bad input or if no entry is found</li><li>• If more than one entry for the same date/time is found, the highest entry number is returned.</li></ul>

## 9.6 Set VUID Implementation Status

Name: SETSTAT^HDISVF01

Integration Agreement Number: 4640

Description: Sets the status for VUID implementation for a facility. If an entry for the given file/field and date/time already exists, a new entry will still be added.

Calling Syntax

SETSTAT^HDISVF01(File,Field,Code,[Date],[STType],[Fac],[Domain],[SysType])

Set Value        Sets implementation status.

Input	Output
<p>File - File number.</p> <p>Field - Field number (Optional; defaults to .01).</p> <p>Code - Code representing the status (optional). Refer to listing of entries in HDIS STATUS file (#7115.5) for range of values. Defaults to 0 (Not Started)</p> <p>Date - FileMan date/time for status (optional). Defaults to NOW. If time is not included with the date, 1 second past midnight will be used as the time.</p> <p>STType - Type of status code (optional). Statuses are: 1 = Client (default) or 2 = Server</p> <p>Fac - Facility number (optional). Defaults to facility number of current system</p> <p>Domain - Domain/IP address of facility (optional). Defaults to MailMan domain of current system.</p> <p>SysType - Type of system (optional). Types are: 0 = Test or 1 = Production. Defaults to type of system of current system.</p>	<p>None</p>

## 9.7 Screening Inactive Terms

Name: \$\$SCREEN^HDISVF01

Integration Agreement Number: 4640

Description: Returns whether or not the given file/field should be screened during selection.

Calling Syntax        \$\$SCREEN^HDISVF01(File,Field,[Date])

Return Value         0= Do not screen selection, 1 = screen selection.

Input	Output
<p>File - File number.</p> <p>Field - Field number.</p> <p>Date - FileMan date/time to check against (Optional; defaults to NOW). If time is not included with the date, the last status for the given day is returned.</p>	<p>0 = Don't screen selection (also returned on bad input).</p> <p>1 = Screen selection.</p>

## 10. External Relations

### 10.1 Software Requirements

Software	Version	Patch Information
Kernel	8.0	XU*8.0*299
Kernel Toolkit	7.3	XT*7.3*93 Note: The required Kernel Toolkit patch is included in the installation distribution.
MailMan	8.0	Fully patched.
VA FileMan	22.0	Fully patched.

*Table 4: Software Installation Requirements*

### 10.2 DBA Approvals and Integration Agreements

The HDI package provides several APIs, which have been approved and documented in Integration Agreements (IAs). The full information is available from the DBA menu on FORUM. This information is maintained by the Database Administrator (DBA).

To obtain the current list of IAs, follow the steps shown in this example:

```
Select Integration Agreements Menu Option: 8 <Enter>
Custodial Package Menu
1. ACTIVE by Custodial Package
2. Print ALL by Custodial Package
3. Supported References Print All
Select Custodial Package Menu Option: 1 <Enter> ACTIVE by Custodial Package
Select PACKAGE NAME: HDI
Device: HOME// <Enter> UCX DEVICE Right Margin: 80//<Enter>
```

## 11. Internal Relations

This guide assumes that post-installation routines have completed VUID seeding without incident. When that is the case, there are neither internal relations nor input/output dependencies.

## 12. Software Product Security

Security for data standardization is handled through file access.

### 12.1 VHA Directives and Official Policies

Implementation of this package is required by VHA Directive 2005-044.

### 12.2 Legal Requirements

No legal requirements are introduced by this package.

The Data Standardization toolset does not manipulate patient data directly, nor does it output any individually identifiable information about patients.

### 12.3 Mail Groups and Alerts

Three mail groups are created as part of the installation: HDIS Errors, HDIS ERT Notification and HDIS HDR Notification. All three mail groups contain a list of remote members. The list of remote members should not be modified, as messages being delivered to these mail groups are being sent to nationally-defined mail groups.

HDIS Errors is used for automated error reporting, for errors related to VUID seeding in VistA files. Local facility users may be added to this group, but local users are not required.

HDIS ERT Notification is used to automatically notify the Enterprise Reference Terminology (ERT) team that VUIDs have been stored, and that ERT can now push standardized terms to the facility. Local facility users should not be added to this group.

HDIS HDR NOTIFICATION is used to notify the Health Data Repository (HDR) team when the entire VUID implementation process occurs. The HDR team will enable the VDEF triggers so that data can be transmitted to the HDR. Local facility users should not be added to this group.

Each of these local mail groups has the corresponding FORUM mail group as a remote member. The FORUM mail groups include Microsoft™ Exchange mailing lists as remote members. User subscription to the national mail group should be managed through membership on the Exchange lists.

### 12.4 Remote Systems

The HDI package communicates with a centralized server on FORUM. The server controls VUIDs and Status settings. There are two kinds of communications:

1. About a term, including the term name, VistA file number, entry number, VUID and a local/national indicator.
2. About the local site's implementation status, including the VistA file number, status code and the date and time of the status change.

The communication occurs during VUID implementation. There is no confirmation of receipt, and no verification of communicated data conducted. The messages are not encrypted.



## 12.5 Menus and Options

The following menu options are added with this package to process mail messages. Menu assignments do not need to be made.

Option Name	Menu Text
HDIS-FACILITY-DATA-SERVER	HDIS FACILITY DATA SERVER
HDIS-STATUS-UPDATE-SERVER	HDIS STATUS UPDATE SERVER

*Table 5: Menus and Options*

## 12.6 Security Keys and File Security

There are no security keys.

The table below indicates the security that the Data Standardization package establishes for its files.

Number	Name	DD	RD	WR	DEL	LAYGO	AUDIT
7115.1	HDIS DOMAIN	@	@	@	@	@	@
7115.3	HDIS XML TEMPLATE	@	@	@	@	@	@
7115.5	HDIS STATUS	@	@	@	@	@	@
7115.6	HDIS FILE/FIELD	@	@	@	@	@	@
7118.11	HDIS TERM/CONCEPT VUID ASSOCIATION	@	@	@	@	@	@
7118.21	HDIS SYSTEM	@	@	@	@	@	@
7118.22	HDIS FACILITY TERM/CONCEPT ASSOCIATION	@	@	@	@	@	@
7118.25	HDIS VUID IMPLEMENTATION STATUS	@	@	@	@	@	@
7118.29	HDIS PARAMETER	@	@	@	@	@	@

*Table 6: Security Keys and File Security*



Implementation of the Data Standardization toolset does anticipate a software patch that will further restrict user rights to access and edit certain reference files. Changes to Security Keys and File Security settings may be required as part of that software patch. Refer to the software patch documentation for more information.

## 13. Glossary

<b>API</b>	Application Programming Interface. This is the definition (calling conventions) by which one application can get services from another application.
<b>CHDR</b>	Clinical Data Repository/Health Data Repository (Interoperability Project)
<b>Deploying</b>	The process of pushing terminology and content from the development to the production environment.
<b>Domain</b>	A subset of medicine, a natural grouping of clinical acts (e.g., demographics, vital signs, laboratory, pharmacy)
<b>DS</b>	Data Standardization
<b>DTS</b>	Distributed Terminology Server
<b>ETS (also VETS)</b>	Enterprise Terminology Services
<b>HDI</b>	Health Data and Informatics
<b>HDR</b>	Health Data Repository
<b>HDR IMS</b>	Health Data Repository – Interim Messaging Solution
<b>Interface Terminology</b>	As opposed to reference terminology, this is a format of the terminology that aims at facilitating its access and use by end-users.
<b>LOINC</b>	Logical Observation Identifier Names and Codes. LOINC is a terminology generally accepted as the exchange standard for laboratory results. It was introduced in 1994 by the Regenstrief Institute (Clem McDonald & Stan Huff).
<b>Mapping</b>	Mappings are sets of relationships of varying complexity established between two vocabularies in order to allow automated translation or connection between them. More specific concepts can generally be mapped accurately to more general concepts. Mappings cannot be used to add specificity to information that was captured at a more generic level.
<b>NDF</b>	National Drug File
<b>NDF-RT</b>	National Drug File – Reference Terminology
<b>NPAD</b>	National Person Administrative Database
<b>Point of Contact</b>	The person who is the first point of contact for questions and comments on a data standard. He/she will serve as the liaison between the designated Domain Action Team (DAT) and users on all issues pertaining to the data standard.

<b>Recommended Field Name</b>	The recommended field name to be used in a database to facilitate data transfer between different systems and databases.
<b>Reference Terminology</b>	A set of concepts and relationships that provides a common reference point for comparison and aggregation of data about the entire health care process.
<b>RPC</b>	Remote Procedure Call.
<b>SNOMED-CT</b>	Maintained and distributed by the College of American Pathologists, the Systematized Nomenclature of Medicine - Clinical Terminology was first introduced in 1965. Free license thru NLM.
<b>Standard Source</b>	The source for electronic copies of the data values or data sets described by the standard.
<b>Standardization</b>	The process of defining, creating, deploying, and maintaining a common terminology resource (i.e., content and services) to all current and future VHA applications.
<b>TDE</b>	Terminology Development Environment
<b>Template</b>	An HL7 template is a data structure, based on the HL7 Reference Information Model that expresses the data content needed in a specific clinical or administrative context. Templates are drawn from the RIM and make use of HL7 vocabulary domains. Templates have been described as constraints on HL7 artifacts. A template is a structured aggregation of one or more archetypes, with optional order, used to represent clinical data.
<b>Terminology</b>	Set of terms, definitions, relationships of a specialized subject area. The terms which are characterized by special reference within a discipline are called the 'terms' of the discipline, and collectively, they form the terminology, those which function in general reference over a variety of languages are simply 'words', and their totality 'the vocabulary' [Sager]. See also vocabulary.
<b>Terminology Server</b>	An application and a machine whose function is to provide access to terminology content thru a published set of standardized services.
<b>Translation</b>	Once two terminologies have been mapped to each other, then a translation between the two is possible (e.g., given this code from terminology A what is the corresponding code in terminology B).
<b>UMLS</b>	Unified Medical Language System. A project initiated by the National Library of Medicine to collect and map several terminologies to each others in order to facilitate access to biomedical resources. Thus, a clinician could the same set of words to search both articles indexed with MeSH and patients whose data was encoded with SNOMED.
<b>Validation Date</b>	The date the data standard was last reviewed by the Domain Action Team to ensure the continued utility and accuracy of the standard.
<b>Vocabulary</b>	A list of words or phrases with their meanings. See also terminology

**VOID** VHA Unique Identifier - these are meaningless numbers that are automatically assigned to concepts, properties, and relationships in a terminology to facilitate their access and manipulation by computers.

**XML** Extension Markup Language. An extensively used format for information exchange.