

VA Plan of Care
Collaborative Terminology Tooling
& Data Management (CTT & DM)
Native Domain Standardization
(NDS)
HDI SDO User Manual



Version 1.0
October 2018
Department of Veterans Affairs (VA)

Revision History

Date	Revision	Description	Author
08/2018	1.0	Delivery to VA	Mantech Mission Solutions and Services
10/23/2018	0.5	Technical writer review	Mantech Mission Solutions and Services, REDACTED
10/23/2018	0.4	Updates to describe SQA discoveries	Mantech Mission Solutions and Services, REDACTED
05/2018	0.3	Technical writer review	Mantech Mission Solutions and Services, REDACTED
04/2018	0.2	Peer review	Mantech Mission Solutions and Services, REDACTED
04/2018	0.1	Initial draft	Mantech Mission Solutions and Services, REDACTED

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Orientation

How to Use This Manual

In this manual the major features of the NDS Health Data & Informatics (HDI) SDO functions are introduced along with a description on how to use them.

- Use of a VistA HDI API to collect the Laboratory SDO data.
- The ability to look-up a Laboratory Orderable Item in the ORDERABLE ITEMS File (#101.43) and view the items associated SDO value. This is done through a VistA option that users can place on their working menu.
- The ability to use e-mail to request a listing of all the SDO values associated to Orderable Items in the ORDERABLE ITEMS File (#101.43) that are related to Laboratory. This uses an HDI SDO MailMan server side function.



NOTE: This document is available in Microsoft Word (.docx), and Adobe Acrobat Portable Document Format (PDF) format.

Intended Audience

The intended audience of this manual is all key stakeholders. The stakeholders include the following:

- Information Resource Management (IRM)—System administrators at Department of Veterans Affairs (VA) sites who are responsible for computer management.
- Clinical Application Coordinator (CAC)
- Laboratory Information Manager (LIM)

Disclaimers

Software Disclaimer

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CAUTION: To protect the security of VistA systems, distribution of this software for use on any other computer system by VistA sites is prohibited. All requests for copies of Kernel for *non-VistA* use should be referred to the VistA site's local Office of Information Field Office (OIFO).

Documentation Disclaimer

This manual provides an overall explanation of the NDS HDI SDO system and the functionality; however, no attempt is made to explain how the overall VistA programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA Internet and Intranet Websites for a general orientation to VistA. For example, visit the Office of Information and Technology (OI&T) VistA Development Intranet website.



DISCLAIMER: The appearance of any external hyperlink references in this manual does *not* constitute endorsement by the Department of Veterans Affairs (VA) of this Website or the information, products, or services contained therein. The VA does *not* exercise any editorial control over the information you find at these locations. Such links are provided and are consistent with the stated purpose of this VA Intranet Service.

Documentation Conventions

This manual uses several methods to highlight different aspects of the material:

- Various symbols are used throughout the documentation to alert the reader to special information. [Table 1](#) describes each of these symbols.

Table 1. Documentation Symbol Descriptions

Symbol	Description
	NOTE / REF: Used to inform the reader of general information including references to additional reading material.
	CAUTION / RECOMMENDATION / DISCLAIMER: Used to caution the reader to take special notice of critical information.
	TIP: Used to inform the reader of helpful tips or tricks they can use.

- Descriptive text is presented in a proportional font (as represented by this font).
- Conventions for displaying TEST data in this document are as follows:
 - The first three digits (prefix) of any Social Security Numbers (SSN) begin with either “000” or “666”.
 - Patient and user names are formatted as follows:
<Application Name/Abbreviation/Namespace>PATIENT,[N] and *<Application Name/Abbreviation/Namespace>USER,[N]* respectively, where “*<Application Name/Abbreviation/Namespace>*” is defined in the Approved Application

Abbreviations document and “N” represents the first name as a number spelled out and incremented with each new entry. For example, in VA FileMan (FM) test patient and user names would be documented as follows: FMPATIENT, ONE; FMPATIENT, TWO; FMPATIENT, THREE; etc.

- “Snapshots” of computer online displays (i.e., screen captures/dialogues) and computer source code, if any, are shown in a *non-proportional* font and enclosed within a box.
 - User’s responses to online prompts are **bold** typeface, underlined and highlighted in yellow (e.g., **<Enter>**).
 - Emphasis within a dialogue box is **bold** typeface, underlined and highlighted in blue (e.g. **STANDARD LISTENER: RUNNING**).
 - Some software code reserved/key words are **bold** typeface with alternate color font.
 - References to “<Enter>” within these snapshots indicate that the user should press the **Enter** key on the keyboard. Other special keys are represented within < > angle brackets. For example, pressing the **PF1** key can be represented as pressing <PF1>.
 - Author’s comments are displayed in italics or as “callout” boxes.



NOTE: Callout boxes refer to labels or descriptions usually enclosed within a box, which point to specific areas of a displayed image.

- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field/file names, and security keys (e.g., DIEXTRACT).



NOTE: Other software code (e.g., Delphi/Pascal and Java) variable names and file/folder names can be written in lower or mixed case (e.g. CamelCase).

Documentation Navigation

This document uses Microsoft® Word’s built-in navigation for internal hyperlinks. To add **Back** and **Forward** navigation buttons to your toolbar, do the following:

1. Right-click anywhere on the customizable Toolbar in Word (*not* the Ribbon section).
2. Select **Customize Quick Access Toolbar** from the secondary menu.
3. Select the drop-down arrow in the “Choose commands from:” box.
4. Select All Commands from the displayed list.
5. Scroll through the command list in the left column until you see the Back command (green circle with arrow pointing left).
6. Select/Highlight the Back command and select **Add** to add it to your customized toolbar.
7. Scroll through the command list in the left column until you see the Forward command (green circle with arrow pointing right).

8. Select/Highlight the Forward command and select Add to add it to your customized toolbar.
9. Select OK.

You can now use these **Back** and **Forward** command buttons in your Toolbar to navigate back and forth in your Word document when clicking on hyperlinks within the document.



NOTE: This is a one-time setup and is automatically available in any other Word document once you install it on the Toolbar.

Help at Prompts

VistA software provides online help and commonly used system default prompts. Users are encouraged to enter question marks at any response prompt. At the end of the help display, you are immediately returned to the point from which you started. This is an easy way to learn about any aspect of the software.

Assumptions

This manual is written with the assumption that the reader is familiar with the following:

- VistA computing environment
- Laboratory Information Manager functions
- Clinical Application Coordinator functions

Reference Materials

Readers who wish to learn more about the VA Health Data & Informatics (HDI) SDO effort should consult the following documents:

- Pending Orders Compendium

HDI documentation is made available online in Microsoft® Word format and in Adobe® Acrobat Portable Document Format (PDF). The PDF documents *must* be read using the Adobe® Acrobat Reader, which is freely distributed by Adobe® Systems Incorporated at: <http://www.adobe.com/>

VistA software documentation can be downloaded from the VA Software Document Library (VDL) at: <http://www.va.gov/vdl/>



REF: HDI manuals are located on the VDL.

1 HDI SDO Summary

Since 2015 the Collaborative Terminology Tooling & Data Management (CTT&DM) Native Domain Standardization (NDS) has worked on several efforts to enhance interoperability of various VA VistA domains.

Several of our efforts related to Laboratory where NDS worked with Laboratory to create nationally deployed files that contain Standards Development Organization (SDO) values. The appropriate Laboratory files were then mapped to their respective national files.

The NDS Health Data & Informatics (HDI) SDO effort is in response to the Plan of Care (Pending Orders) Compendium for the association of SDO values to Laboratory items in the Order Entry/Results Reporting (OE/RR) ORDERABLE ITEM FILE (#101.43). The effort was initially performed in patch HDI*1.0*22.

2 Integration Control Registration's (ICR's)

On the NDS Plan of Care effort we are creating an Application Program Interface (API) and supporting options that allow users to see the Standards Development Organization (SDO) codes that are associated to Laboratory items in the ORDERABLE ITEMS File (#101.43)

Since this effort crosses application boundaries, we need ICR's that will give us permission to Read from their application files.

The HDI SDO options use the following ICR's:

5812	NAME: MAX LINES SEND/RECEIVE	A #: 5812
6895	NAME: HDI READ ORDERABLE ITEMS File (#101.43)	
6901	NAME: HDI READ LABORATORY SERVICE LABORATORY TEST FILE (#60)	
6902	NAME: HDI READ MASTER LABORATORY TEST FILE (#66.3)	

3 HDI SDO Options

The HDI SDO effort has three components:

1. Use of a VistA HDI API to collect the Laboratory SDO data.
2. The ability to look-up a Laboratory Orderable Item in the ORDERABLE ITEMS File (#101.43) and view the items associated SDO value. This is done through a VistA option that users can place on their working menu.
3. The ability to use e-mail to request a listing of all the SDO values associated to Orderable Items in the ORDERABLE ITEMS File (#101.43) that are related to Laboratory. This uses an HDI SDO MailMan server side function.

4 HDI SDO Look-up

The HDI SDO LOOK-UP (option HDI REQUEST SDO [HDISDO REQUEST SDO]) allows the user to request SDO values from the ORDERABLE ITEMS File (#101.43) for Laboratory.

The user would need to follow their facilities normal procedures to have the [HDISDO REQUEST SDO] option added to their working menu.

If the user has programming privileges at the facility and access to the programmers' prompt they may enter the following to use the Look-up option. From the programmers' prompt enter 'D ^XUP, at the 'select option name:' prompt enter HDISDO REQUEST SDO.

Figure 1: Sample accessing the HDI SDO LOOK-UP from the programmers' prompt

```
>D ^XUP

Setting up programmer environment
This is a TEST account.

Terminal Type set to: C-VT100

You have 51 new messages.

Select OPTION NAME: HDISDO REQUEST SDO      HDI REQUEST SDO
HDI REQUEST SDO
```

4.1 Select Type of Look-up

- 'S' Single – This is for looking up a single item from the ORDERABLE ITEMS File (#101.43). The user is prompted for text to search for. VistA returns a list of all matching ORDERABLE ITEMS, from which the user selects *one* to include in the report. The text to search for is not case sensitive. A match is made if the ORDERABLE ITEM Name field begins with the text entered and the ORDERABLE ITEM belongs *only* to the LAB set. (A match may also be made if the ORDERABLE ITEM belongs to more than one set, but the LAB set is the last one listed in the SET MEMBERSHIP field.)
- 'P' Partial - This look-up returns all ORDRABLE ITEMS whose name or synonyms start with text entered by the user. The Partial name is case sensitive. A Partial name can be 1 character up to 40 characters in length. A match is made if the ORDERABLE ITEM belongs to the LAB set, regardless of any other set memberships.
- 'ALL' for All - This look-up will return the SDO values for all of the selected areas orderable items in the ORDERABLE ITEMS File (#101.43)

If a carriage return without selection or an up caret '^' is entered a message 'Type Not Selected.' Is displayed and the options quits.

Figure 2: Sample Look-up Type Selection exit. Enter either <cr> or '^'. Returns to prior prompt

```
Enter the Area to search for SDO codes: LABORATORY

Select one of the following:

P          PARTIAL
S          SINGLE
A          ALL

Enter the Type of Search: ^
Type Not Selected.

Select one of the following:

L          LABORATORY

Enter the Area to search for SDO codes:
```

Figure 3: Sample Single look-up selection

```
Select one of the following:

P          PARTIAL
S          SINGLE
A          ALL

Enter the Type of Search: SINGLE
Enter the Orderable Item for SDO value: ACE

1  ACE BANDAGE  BANDAGE,ELASTIC BANDAGE
2  ACEBUTOLOL  ** N/F **  CAP,ORAL
3  ACETAMINOPHEN LIQUID,ORAL
4  ACETAMINOPHEN SUPP,RTL
5  ACETAMINOPHEN TAB

Press <Enter> to see more, '^' to exit this list,  OR
CHOOSE 1-5: 3  ACETAMINOPHEN LIQUID,ORAL
```

Figure 4: Sample partial look-up selection

```
Select one of the following:

      P      PARTIAL
      S      SINGLE
      A      ALL

Enter the Type of Search: P PARTIAL
Enter a Case Sensitive Partial Match for an Orderable Item Name: ACT
Collecting SDO's
```

Figure 5: Sample ALL look-up selection

```
Select one of the following:

      P      PARTIAL
      S      SINGLE
      A      ALL

Enter the Type of Search: ALL
Collecting SDO's
```

4.2 Look-up Return

The HDI SDO LOOK-UP calls the HDI SDO API with the chosen look up parameters. Upon the return from the HDI SDO API the return will first display errors found (if any).

Figure 6: Sample Display of Error(s) Returned from HDI SDO API

```
ERROR ITEMS FROM HDI SDO LOOKUP

The first item 9) is returned by the status. The last two items are returned in the
error array.

9) Orderable Item Lab Pointer Not Found in Lab File.
Orderable Item Lab Pointer Not Found in Lab File. 6800:NEW:5325
Orderable Item Lab Pointer Not Found in Lab File. 6842:TEST TEST:5340

Press ENTER to Continue: //
```

For more information on errors please read the RETURN ERRORS section.

The return will next display counts collected by the HDI SDO API. The first Line indicates The Type of look-up (Single, Partial, or ALL) and the Area (Laboratory).

Figure 7: Sample Laboratory counts returned by the HDI SDO API

```
Quick Stat for Single Laboratory Orderable Item Name:
IEN: 549 Name: GLUCOSE

Orderable Items File Count:      1
Number of Orderable Items File That Are Inactive:
Number of Orderable Items Partial Match to Mnemonic:
Number of Primary Lab Tests Count:      1
Number of Primary Tests that are Panels:
Number of Laboratory Tests:      1
Number of Unique Laboratory Tests:      1
Number of Inactive Laboratory Tests:
Number of Specimens:      9
Number of Inactive Specimens:
Number of Master Laboratory Tests:      3
Number of Unique Master Laboratory Tests:      2
Number of Inactive Master Laboratory Tests:      1

Press ENTER to Continue:  //
```

After the requesting person has reviewed the counts they will be prompted to select the output style. The choices are XML, EXPORT, or REPORT. The XML and EXPORT are more suitable for saving in a file since the display output has no user interaction until the display has completed. The XML displays the requested information in an XML style format. The EXPORT displays the data in a tab delimited format which is suitable for importing into a spreadsheet. The REPORT format is designed for displaying in a traditional user readable formatted report.

Figure 8: Output Type Selection Prompt

```
Select one of the following:

      X      XML
      E      EXPORT
      R      REPORT

Enter the Output Format:
```

Once the output style has been selected the requester will select the output device.

Device Selection Prompt

Figure 9: Output Type Selection Prompt

```
Output device: HOME//
```

The standard VistA Device criteria apply, except that increasing page length (e.g., by entering ";;999999" at the DEVICE prompt) will not prevent pagination of results.

It is recommended that the requester select either Host File (HF) or use their emulator to save the data to their local hard drive for the XML or EXPORT output styles.

It is the requesters responsibility to know how to use (HF). If the requester does not know how to use (HF) they should contact their local OI&T team for assistance in creating the (HF) and retrieving the (HF) to their local hard drive.

If the Look-up Type is ALL, the Output Type is NOT Report, and the Device selected is the requester's HOME device the Device selection option will ask the requester if they are sure that they want to have the output displayed to their screen. The ALL option can run to several thousand lines.

After the output is completed (or if the requester does NOT select an output style) the requester is returned to the 'Enter the Orderable Item for SDO value:' prompt.

If the search type is ALL after the output is completed (or if the requester does NOT select an output style) the requester is returned to the '**Enter the Area to search for SDO codes:**' prompt.

Figure 10: Sample XML output to a Host File

```
Select one of the following:

      X      XML
      E      EXPORT
      R      REPORT

Enter the Output Format: XML
Output device: HOME// HF

1 HFS    DISK
2 HFS-GSA  GSA
Choose 1-2> 1  HFS    DISK
HOST FILE NAME: USER$:[TEMP]TMP.DAT//USER$:[CHEY59]LAB_FAST_XML.TXT  ADDRESS/PAR
AMETERS: "NWS"//

....Outputting...
```

Figure 11: Sample Laboratory XML output to the Home Device.

```
Select one of the following:

      X      XML
      E      EXPORT
      R      REPORT

Enter the Output Format: x  XML
Output device: HOME//    DEC Windows
<?xml version="1.0" encoding="utf-8" ?>
<Laboratory_Orderable_Items xmlns:xs="http://www.w3.org/2001/XMLSchema">
<Facility>
<Facility_Name-Number>REDACTED</Facility_Name-Number>
<Facility_Production_Account>NO</Facility_Production_Account>
<Facility_Net_Name>REDACTED</Facility_Net_Name>
<Look_up_Type>SINGLE</Look_up_Type>
</Facility>
<Orderable_Item>
<Orderable_Item_Number>805</Orderable_Item_Number>
<Orderable_Item_Name>FASTING GTT</Orderable_Item_Name>
<Orderable_Item_Mnemonic></Orderable_Item_Mnemonic>
<Orderable_Item_Inactive_Date></Orderable_Item_Inactive_Date>
<Orderable_Item_Status>0</Orderable_Item_Status>
<Orderable_Item_Synonym>
<Orderable_Item_Synonym_Name>glucose tolerance test</Orderable_Item_Synonym_Name>
>
</Orderable_Item_Synonym>
<Lab_Primary_Order_Item>
<Lab_Primary_Test_IEN>469</Lab_Primary_Test_IEN>
<Lab_Primary_Test_Name>FASTING GTT</Lab_Primary_Test_Name>
<Lab_Primary_Test_Panel>NO</Lab_Primary_Test_Panel>
<Laboratory_Test_Item>
<Lab_Test_IEN>469</Lab_Test_IEN>
<Lab_Test_Name>FASTING GTT</Lab_Test_Name>
<Lab_Test_Type>OUTPUT (CAN BE DISPLAYED)</Lab_Test_Type>
```



```

<Lab_Test_Data_Location>CH;149;1</Lab_Test_Data_Location>
<Lab_Test_Data_Loc_Physical>DD(63.04,149,</Lab_Test_Data_Loc_Physical>
<Lab_Test_Inactive_Date></Lab_Test_Inactive_Date>
<Lab_Test_Status>0</Lab_Test_Status>
<Lab_Test_Specimen>
<Lab_Test_Specimen_IEN>72</Lab_Test_Specimen_IEN>
<Lab_Test_Specimen_Name>SERUM</Lab_Test_Specimen_Name>
<Lab_Test_Specimen_Units>mg/dl</Lab_Test_Specimen_Units>
<Lab_Test_Specimen_Inactive_Date></Lab_Test_Specimen_Inactive_Date>
<Lab_Test_Specimen_Status>0</Lab_Test_Specimen_Status>
<Master_Lab_Test_Item>
<Master_Lab_Test_IEN>17</Master_Lab_Test_IEN>
<Master_Lab_Test_Name>GLUCOSE, BODY FLUID</Master_Lab_Test_Name>
<Master_Lab_Test_Alternate_Name>Glucose Plr-sCnc</Master_Lab_Test_Alternate_Name
>
<Master_Lab_Test_Inactive_Date>5/23/2017</Master_Lab_Test_Inactive_Date>
<Master_Lab_Test_Status>1</Master_Lab_Test_Status>
<Master_Lab_Test_LOINC_Code>14747-0</Master_Lab_Test_LOINC_Code>
<Master_Lab_Test_Component></Master_Lab_Test_Component>
<Master_Lab_Test_Property>SCnc</Master_Lab_Test_Property>
<Master_Lab_Test_Time_Aspect>Pt</Master_Lab_Test_Time_Aspect>
<Master_Lab_Test_Specimen>Plr fld</Master_Lab_Test_Specimen>
<Master_Lab_Test_Scale>Qn</Master_Lab_Test_Scale>
<Master_Lab_Test_Method></Master_Lab_Test_Method>
</Master_Lab_Test_Item>
</Lab_Test_Specimen>
</Laboratory_Test_Item>
</Lab_Primary_Order_Item>
</Orderable_Item>
</Laboratory_Orderable_Items>

```

Figure 12: Sample Laboratory EXPORT output to the Home Device.

```

Select one of the following:

      X      XML
      E      EXPORT
      R      REPORT

Enter the Output Format: EXPORT
Output device: HOME//    DEC Windows

Facility_Name-Number      Production_Account      Net_Name      Area      Type_of_
Lookup Partial_Nam
e      Orderable_Item_IEN      Orderable_Item_Name      Orderable_Item_MnemonicO
rderable_Item_
Inactive_Date      Orderable_Item_Status      Orderable_Item_Synonyms Lab_Primary_Test
_IEN
      Lab_Primary_Test_Name      Lab_Primary_Test_Panel      Lab_Test_IEN      Lab_Test
_Name      Lab_Tes
t_Type      Lab_Test_Data_Location      Lab_Test_Data_Loc_Physical      Lab_Test_Inactiv
e_Date
Lab_Test_Status Lab_Test_Specimen_IEN      Lab_Test_Specimen_Name      Lab_Test_Specime
n_U
nits      Lab_Test_Specimen_Inactive_Date Lab_Test_Specimen_Status      Master_L
ab_Test_IE
N      Master_Lab_Test_Name      Master_Lab_Test_Alternate_Name      Master_Lab_Test_
Inactive_D
ate      Master_Lab_Test_Status      Master_Lab_Test_LOINC_Code      Master_Lab_Test_
Component
Master_Lab_Test_Property      Master_Lab_Test_Time_Aspect      Master_Lab_Test_
Specimen      Ma
ster_Lab_Test_Scale      Master_Lab_Test_Method
REDACTED      NO      REDACTED      LABORATORY      S
INGLE      805      FASTIN
G GTT      No      Active      glucose tolerance test      469      FASTING GTT      N
O      469      FASTING GTT      OUTPU
T (CAN BE DISPLAYED)      CH;149;1      DD(63.04,149,      Active      72      S

```

ERUM	mg/dl	Active	17	GL		
UCOSE, BODY FLUID		Glucose	Plr-sCnc	5/23/2017	Inactive	1
4747-0	SCnc	Pt	Plr fld Q			
n						

Figure 13: Sample Laboratory REPORT output to the Home Device.

```
Select one of the following:

      X      XML
      E      EXPORT
      R      REPORT

Enter the Output Format: REPORT
Output device: HOME//    DEC Windows

      HDI Orderable Items SDO List For: LABORATORY
      REDACTED  NOT-PRODUCTION
      Type of Lookup: SINGLE
      Date Printed: Apr 17, 2018                      Page 1

-----
Orderable Item Name: FASTING GTT
      IEN: 805      Mnemonic: No  Inactive Date:          Status:  Active
      Synonyms: glucose tolerance test

-----
Laboratory Primary Item: FASTING GTT                      IEN:  469
      Panel: NO
Laboratory Test: FASTING GTT                      IEN:  469
      Type: OUTPUT  Data Location: CH;149;1      Data Loc Physical: DD(63.04,149,
      Inactive Date:          Status:  Active
Specimen: SERUM                      IEN:  72
      Units: mg/dl      Inactive Date:          Status:  Active
Master Lab Test Name: GLUCOSE, BODY FLUID
      IEN: 17      Inactive DT: 5/23/2017          Status: Inactive
      Alternate Name: Glucose Plr-sCnc
      LOINC Code: 14747-0
      Component:
      Property: SCnc
Type <Enter> to continue or '^' to exit:

      HDI Orderable Items SDO List For: LABORATORY
```

REDACTED NOT-PRODUCTION

Type of Lookup: SINGLE

Date Printed: Apr 17, 2018

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Time Aspect: Pt

Specimen: Plr fld

Scale: Qn

Method: Pt

Type <Enter> to continue or '^' to exit:

--- Report Finished ---

5 HDI SDO Server Side MailMan

Option: HDI SDO ORDER SERVER [HDISDOSERVER]

The HDI SDO Server Side MailMan function allows requesters to use their VA e-mail to request all of the items associated in the ORDERABLE ITEMS File (#101.43) to a given area (Laboratory) from a facility. The requester would need to know the facility's 'NET NAME' in order to send the request. The requests returned attached file is a tab delimited file, suitable for importing into a spreadsheet. Depending on the size of the data collected, the return could be spread over multiple messages. If errors are encountered during the collection (see the section on RETURN ERRORS) they will be in a separate file attached to the initial return message. If the data is spread over multiple return messages the attached files will be numbered in order. The text file name will be the facility name_area (LAB)_numeric date/time stamp_file number.txt. The last return message will contain the word COMPLETED in the message subject line.

Steps to request and receive an Areas Orderable Items SDO's via VA e-mail

- Get the facility's NET NAME. If the requester does not know the facility's NET NAME there are two options.
 1. If the requester has MailMan privilege at the facility they can send a MailMan message to their VA.GOV e-mail. When the message comes into the requesters inbox the look at the 'FROM' address information to the right of the '@' is the facilities NET NAME.
 2. put in an help desk ticket requesting the facility's NET NAME address for sending e-mail to that facility.
- Create a NEW e-mail:
 1. The TO: will be REDACTED
 2. The SUBJECT: will be 'LAB' for Laboratory. The subject must be all CAPs and may only be for one area.
 3. The Body of the e-mail will be blank.

4. Press SEND.

The e-mail message will go to that facilities HDI SDO MailMan Server. The HDI SDO MailMan Server will interface with the HDI SDO API and collect the SDO's associated to the requested Areas Items in the ORDERABLE ITEMS File (#101.43). The HDI SDO MailMan Server will take the XML style collected data and put into a TAB delimited structure suitable for importing into a spreadsheet.

If any errors (status or array) are returned from the HDI SDO API the HDI SDO MailMan Server will place them in a separate text file that will be attached to the first return message.

Depending on the amount of data collected and the facilities MailMan policy the data returned to the requester may be in multiple messages. The first message will contain the attached errors text file (if there are any errors), the attached First data file. The First data file is the only one that will have the titles for the columns. The Body of the return message will contain various counts that were returned from the HDI SDO API. The count display will be different depending on the Area collected for. The file name(s) will have an increment number so that the requester will know the file order when importing into their spreadsheet.

- When the requester receives the return message(s) the requester will need to save the attached files to the hard drive using the 'Save-As' function for attachments in e-mail.

Figure 14: Sample Laboratory Area HDI SDO MailMan Server Request

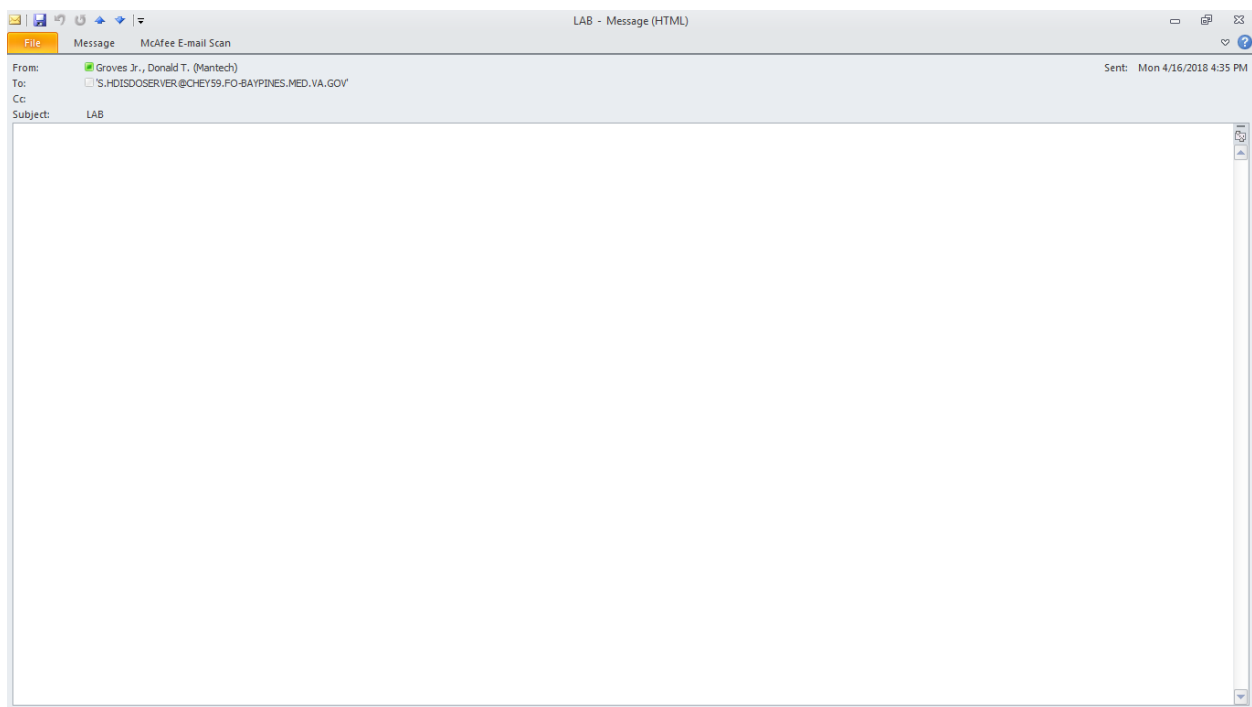


Figure 15: Sample Laboratory HDI SDO MailMan Server Return Message (With attached errors)

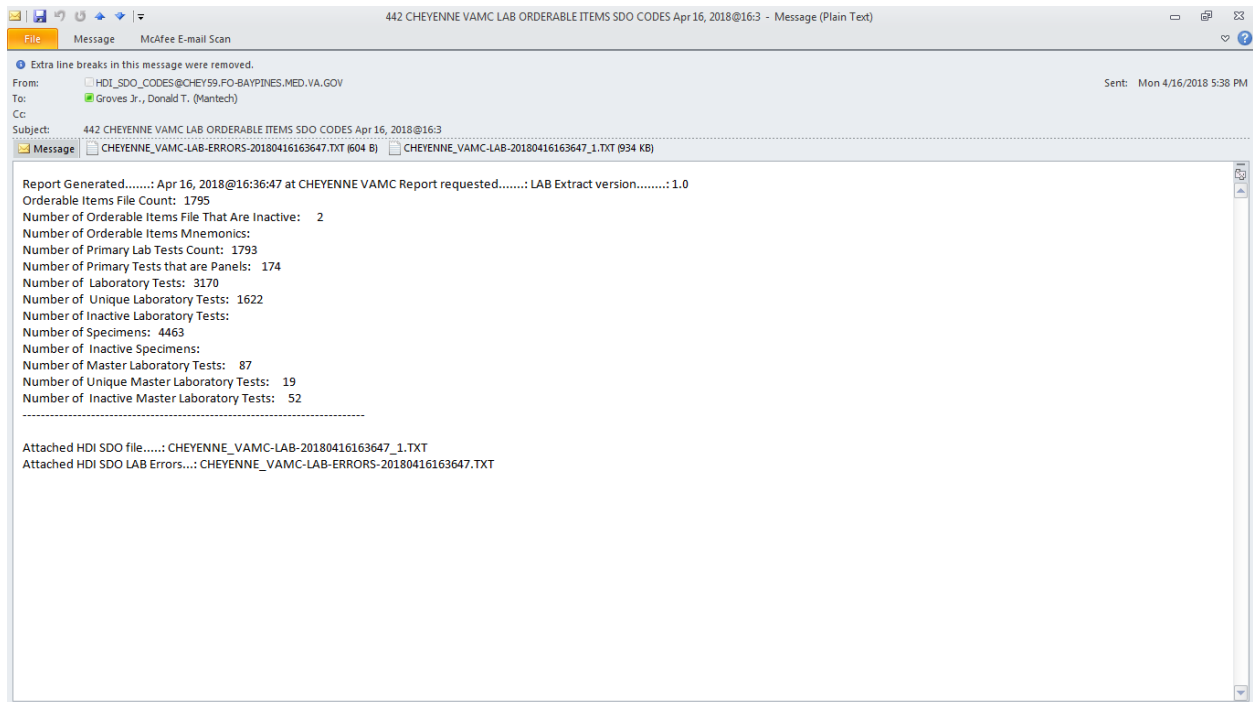


Figure 16: Sample Laboratory HDI SDO MailMan Server Return Message Body

```
Report Generated.....: Apr 16, 2018@16:36:47 at REDACTED Report requested.....:
LAB Extract version.....: 1.0

Orderable Items File Count:    1795

Number of Orderable Items File That Are Inactive:      2

Number of Orderable Items Mnemonics:

Number of Primary Lab Tests Count:    1793

Number of Primary Tests that are Panels:    174

Number of Laboratory Tests:    3170

Number of Unique Laboratory Tests:    1622

Number of Inactive Laboratory Tests:

Number of Specimens:    4463

Number of Inactive Specimens:

Number of Master Laboratory Tests:    87

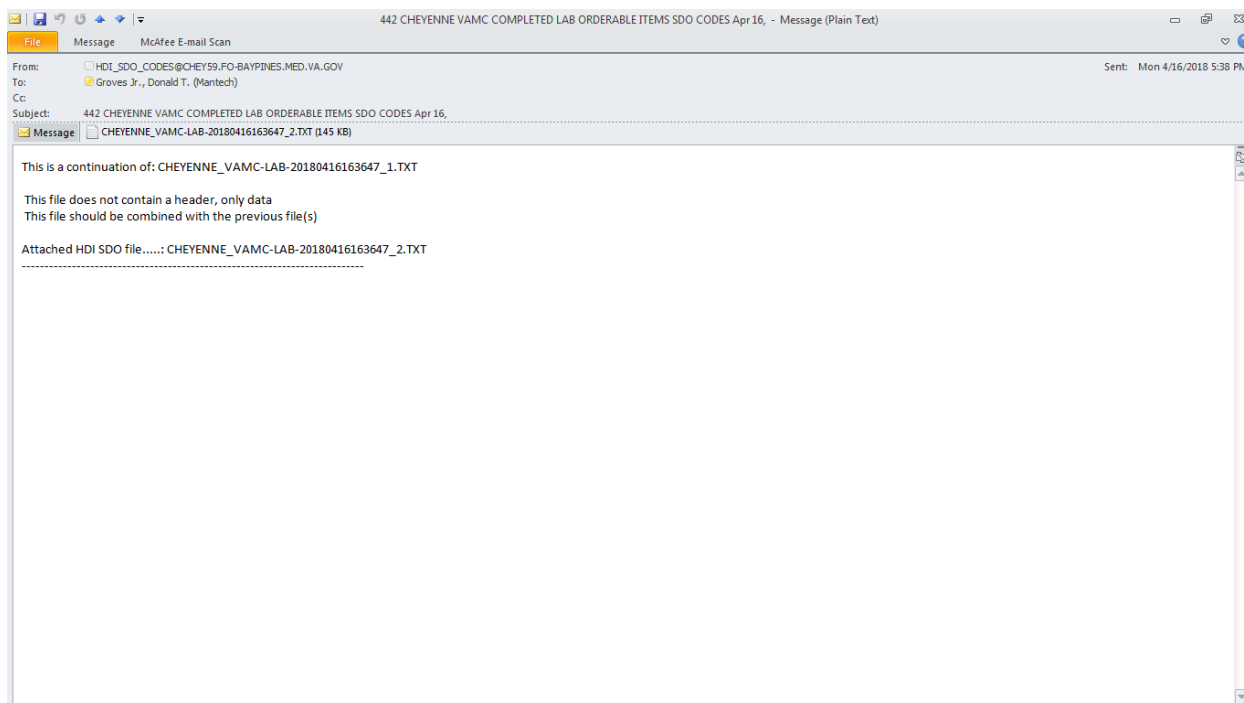
Number of Unique Master Laboratory Tests:    19

Number of Inactive Master Laboratory Tests:    52

-----

Attached HDI SDO file.....: REDACTED LAB-20180416163647_1.TXT
Attached HDI SDO LAB Errors...: REDACTED-LAB-ERRORS-20180416163647.TXT
```


Figure 17: Sample Laboratory HDI SDO MailMan Server Return Second (COMPLETED) Message



6 HDI SDO API

The HDI SDO API is an API that allows the collection of Laboratory items from the OE/RR ORDERABLE ITEMS File (#101.43).

Option: HDI SDO API [HDISDO API]

Groups, other than HDI, that want to utilize the HDI SDO API will need to submit to be a subscriber to ICR: 6894 NAME: HDI COLLECT SDOS.

The API starts in the ORDERABLE ITEMS File (#101.43) and looks for items that are related to the Area and search criteria passed in. When a suitable item is identified, information about the item is collected to help identify that item in the selection area as well as the items associated SDO's.

The API does NOT collect Laboratory information relating to ORDERABLE ITEMS whose SET codes are associated to Blood Bank (BB) or Anatomic Pathology (AP).

The API has several status error numbers (see RETURN ERRORS section) depending on the type of error encountered.

The API returns the data in an XML style format.

During the collection the API maintains counts on various metrics, depending on the Area selected.

Typical call string to the API:

S STATUS=\$SEN^HDISDOC

(AREA,TYPE,ID,,RETURN,"ERRORARRAY","COUNT",SINGLE MNEMONIC)

To invoke the API the following items are needed:

Required Items:

- STATUS - A variable to receive the returned status. See the RETURN ERRORS section for details on status codes.
- AREA - The Area for the search ('L' for Laboratory).
- TYPE - The Type of search ('S' for Single Item, 'P' for a search on a Partial Match to an Orderable Item name, 'ALL' for all items for the Area)
- ID - ID of the item to be searched. The ID can be one of three things:
 1. The Orderable Items internal record number. If the search type is 'S' for a single item.
 2. The case sensitive partial match to an Orderable Item Name for the Area. If the search type is 'P' for partial match.
 3. ALL if the search is for all the Orderable Items for the Area. If the search type is 'ALL'.
- RETURN - The Return array variable. This will usually be a global value example '^TMP(\$J,"RETURN")'. The return array will contain the XML style output of the search.

Optional Items:

- ERRORARRAY - Error Array variable. If the requester wants an array of incorrect items (see the RETURN ERRORS section) this field must be defined.
- COUNT - Counts are associated to the Area and the search criteria. If the field is defined the API will collect various counts depending on the Area selected.
- SINGLE MNEMONIC - This is for further delineation of a 'SINGLE' item look-up. If the Single item is identified as a mnemonic by the calling routine the value would be 'Y' for yes.

6.1 Data Collected

The following items are read for all Areas.

6.1.1 Data Read

ORDERABLE ITEMS File (#101.43)

- Orderable Item IEN
- Orderable Item Name (#.01)
- Orderable Item ID (#2)
- Orderable Item Inactivated (#.1)
- Orderable Item Set Membership (#9)
- Orderable Item Synonyms (#1)

The remaining data read is dependent on the Area being searched.

6.1.1.1 LABORATORY

LABORATORY TEST File (#60)

- Laboratory Test IEN
- Laboratory Test Name (#.01)
- Laboratory Test Type (#3)
- Laboratory Test Location (Data Name) (#5)
- Laboratory Test Field (#13)
- Laboratory Test Lab Test Included In Panel (#200)
- Laboratory Test Lab Test (#60.02,.01)
- Laboratory Test Test Inactive (#132)
- Laboratory Test Test Inactive Date (#133)
- Laboratory Test Site/Specimen (#100) (IEN)
- Laboratory Test Site/Specimen Name (#60.01,.01)
- Laboratory Test Site/Specimen Units (#60.01,6)
- Laboratory Test Site/Specimen MLTF (#60.01,30)
- Laboratory Test Site/Specimen Result/Specimen Inactive (#60.01,32)
- Laboratory Test Site/Specimen Result/Specimen Inactive Date (#60.01,33)

MASTER LABORATORY TEST File (#66.3)

- Master Laboratory Test IEN
- Master Laboratory Test Lab Test Name (#.01)
- Master Laboratory Test Alternate Test Name (#.02)
- Master Laboratory Test LOINC Code (#.04)
- Master Laboratory Test Component (#.05)
- Master Laboratory Test Property (#.06)
- Master Laboratory Test Time Aspect (#.07)
- Master Laboratory Test Specimen (#.08)
- Master Laboratory Test Scale (#.09)
- Master Laboratory Test Method (#1)
- Master Laboratory Test Effective Date/Time (#66.399,.01)
- Master Laboratory Test Status (#66.399,.02)

6.1.2 Data Returned

The following data is returned to the requester in an XML style format.

ORDERABLE ITEMS File (#101.43)

- Orderable Item IEN

- Orderable Item Name (#.01)
- Orderable Item Inactivated (#.1)
- Orderable Item Status. Based on the value of the (#.1) field.
- Orderable Item Synonyms (#1)

The remaining data returned is dependent on the Area being searched.

6.1.2.1 LABORATORY

LABORATORY TEST File (#60)

- Laboratory Test IEN
- Laboratory Test Name (#.01)
- Laboratory Test Type (#3)
- Laboratory Test Location (Data Name) (#5)
- Laboratory Test Field (#13)
- Laboratory Test Lab Test Included In Panel (#200)
- Laboratory Test Lab Test (#60.02,.01)
- Laboratory Test Test Inactive (#132)
- Laboratory Test Test Inactive Date (#133)
- Laboratory Test Site/Specimen (#100) (IEN)
- Laboratory Test Site/Specimen Name (#60.01,.01)
- Laboratory Test Site/Specimen Units (#60.01,6)
- Laboratory Test Site/Specimen Result/Specimen Inactive (#60.01,32)
- Laboratory Test Site/Specimen Result/Specimen Inactive Date (#60.01,33)

MASTER LABORATORY TEST File (#66.3)

- Master Laboratory Test IEN
- Master Laboratory Test Lab Test Name (#.01)
- Master Laboratory Test Alternate Test Name (#.02)
- Master Laboratory Test LOINC Code (#.04)
- Master Laboratory Test Component (#.05)
- Master Laboratory Test Property (#.06)
- Master Laboratory Test Time Aspect (#.07)
- Master Laboratory Test Specimen (#.08)
- Master Laboratory Test Scale (#.09)
- Master Laboratory Test Method (#1)
- Master Laboratory Test Effective Date/Time (#66.399,.01)
- Master Laboratory Test Status (#66.399,.02)

Figure 18: Laboratory XML Style Return Item Format

```

<?xml version="1.0" encoding="utf-8" ?>
<Facility>
<Facility_Name-Number>'LOCAL FACILITY NAME AND NUMBER'</Facility_Name-Number>
<Facility_Production_Account>'YES if Production, NO if not a Production
account'</Facility_Production_Account>
<Facility_Net_Name>'LOCAL FACILITY NET NAME'</Facility_Net_Name>
<Look_up_Type>'Type of look-up SINGLE, PARTIAL, or ALL'</Look_up_Type>
</Facility>
<Orderable_Item> (Can be multiple)
<Orderable_Item_Number>'Orderable Item IEN from (#101.43)'</Orderable_Item_Number>
<Orderable_Item_Name>'Orderable Item Name from (#101.43)'</Orderable_Item_Name>
<Orderable_Item_Mnemonic>'Is the Orderable Item a Mnemonic. Used with Partial Look-
up'</Orderable_Item_Mnemonic>
<Orderable_Item_Inactive_Date> 'Orderable Item Inactive Date from
(#101.43)'</Orderable_Item_Inactive_Date>
<Orderable_Item_Status>'0 (zero) if active 1 (one) if
inactive'</Orderable_Item_Status>
<Orderable_Item_Synonym>
<Orderable_Item_Synonym_Name>'Orderable Item Synonym from
(#101.43)'</Orderable_Item_Synonym_Name> (Can be multiple)
</Orderable_Item_Synonym>
<Lab_Primary_Order_Item>
<Lab_Primary_Test_IEN>'Laboratory Test file (#60) IEN from the ORDERABLE ITEMS File
(#101.43)'</Lab_Primary_Test_IEN>
<Lab_Primary_Test_Name>'Laboratory Test Primary Name from
(#60)'</Lab_Primary_Test_Name>
<Lab_Primary_Test_Panel>'is the Laboratory Test Primary Item a Panel 'YES' if it is
'NO' if it is not'</Lab_Primary_Test_Panel>
<Laboratory_Test_Item> (Can be multiple)
<Lab_Test_IEN>'Laboratory Test IEN from (#60)'</Lab_Test_IEN>
<Lab_Test_Name>'Laboratory Test Name from (#60)'</Lab_Test_Name>
<Lab_Test_Type>'Laboratory Test Type from (#60). Can be INPUT, OUTPUT, BOTH, or
NEITHER'</Lab_Test_Type>
<Lab_Test_Data_Location>'Laboratory Test Data Location from
(#60)'</Lab_Test_Data_Location>
<Lab_Test_Data_Loc_Physical>'Laboratory Test Physical Data Location from
(#60)',</Lab_Test_Data_Loc_Physical>
<Lab_Test_Inactive_Date>'Laboratory Test Inactive Date from
(#60)'</Lab_Test_Inactive_Date>
<Lab_Test_Status>'0 (zero) if active 1 (one) if inactive'</Lab_Test_Status>

```

```

<Lab_Test_Specimen> (Can be multiple)
<Lab_Test_Specimen_IEN>'Laboratory Test Specimen IEN from
(#60.01)'</Lab_Test_Specimen_IEN>
<Lab_Test_Specimen_Name>'Laboratory Test Specimen Name from
(#60.01)'</Lab_Test_Specimen_Name>
<Lab_Test_Specimen_Units>'Laboratory Test Specimen Units from
(#60.01)'</Lab_Test_Specimen_Units>
<Lab_Test_Specimen_Inactive_Date>'Laboratory Test Specimen Inactive Date from
(#60.01)'</Lab_Test_Specimen_Inactive_Date>
<Lab_Test_Specimen_Status>'0 (zero) if active 1 (one) if
inactive'</Lab_Test_Specimen_Status>
<Master_Lab_Test_Item>
<Master_Lab_Test_IEN>'Master Laboratory Test IEN from
(#66.3)'</Master_Lab_Test_IEN>
<Master_Lab_Test_Name>'Master Laboratory Test Name from
(#66.3)'</Master_Lab_Test_Name>
<Master_Lab_Test_Alternate_Name></Master_Lab_Test_Alternate_Name>
<Master_Lab_Test_Inactive_Date>'Master Laboratory Test Inactive Date from
(#66.3)'</Master_Lab_Test_Inactive_Date>
<Master_Lab_Test_Status>'0 (zero) if active 1 (one) if
inactive'</Master_Lab_Test_Status>
<Master_Lab_Test_LOINC_Code>'Master Laboratory Test LOINC Code from
(#66.3)'</Master_Lab_Test_LOINC_Code>
<Master_Lab_Test_Component>'Master Laboratory Test Component from
(#66.3)'</Master_Lab_Test_Component>
<Master_Lab_Test_Property>'Master Laboratory Test Property from
(#66.3)'</Master_Lab_Test_Property>
<Master_Lab_Test_Time_Aspect>'Master Laboratory Test Time Aspect from
(#66.3)'</Master_Lab_Test_Time_Aspect>
<Master_Lab_Test_Specimen>'Master Laboratory Test Specimen from
(#66.3)'</Master_Lab_Test_Specimen>
<Master_Lab_Test_Scale>'Master Laboratory Test Scale from
(#66.3)'</Master_Lab_Test_Scale>
<Master_Lab_Test_Method>'Master Laboratory Test Method from
(#66.3)'</Master_Lab_Test_Method>
</Master_Lab_Test_Item>
</Lab_Test_Specimen>
</Laboratory_Test_Item>
</Lab_Primary_Order_Item>
</Orderable_Item>
</Laboratory_Orderable_Items>

```

6.2 Count Information

If the COUNT field is defined, the API collects counts of identified data based on the Area being searched and the search criteria.

Both areas collect counts on items from the ORDERABLE ITEMS File (#101.43)

- Orderable Item Count – How many Orderable Items were found for the requested search.
- Number of Inactive Orderable Items – How many of the found Orderable Items are inactive.
- Number of Orderable Item Mnemonics – Of the found Orderable Items how many are mnemonics. This pertains to Partial match searches.

6.2.1 LABORATORY

- Number of Primary Lab Tests Count - This is the number of LABORATORY TEST File (#60) Items associated to the found Orderable Items from the ORDERABLE ITEMS File (#101.43). The primary test may be a regular test or it may be a panel test. If the primary test is a panel then all of tests in that panel will be collected.
- Number of Primary Tests that are Panels – This is the number of tests associated to the found Orderable Items from the ORDERABLE ITEMS File (#101.43) that are panels.
- Number of Laboratory Tests – The number of LABORATORY TEST File (#60) items identified. This number may be higher than the total number of Laboratory Tests at the facility since multiple panels can be associated to the same tests.
- Number of Unique Laboratory Tests - How many of the identified Laboratory Test File items are unique. The items can be referenced by more than one Primary Test item.
- Number of Inactive Laboratory Tests – How many of the identified Laboratory Tests are inactive.
- Number of Specimens – The number of specimens that are associated to the identified Laboratory Test items. A Laboratory Test may have more than one specimen associated to it.
- Number of Inactive Specimens – How many of the found specimens are inactive.
- Number of Master Laboratory Tests - The number of MASTER LABORATORY TEST File (#66.3) items that are associated to the found specimens.
- Number of Unique Master Laboratory Tests – How many of the identified Master Laboratory Test items are unique. Multiple specimens may be associated to the same Master Laboratory Test item.
- Number of Inactive Master Laboratory Tests – How many of the identified Master Laboratory Test items are inactive.

7 Return Errors

The HDI SDO API returns two types of error messages. The first is status errors, which can contain more than a single status code. This error code will be returned to the calling routine. The second is an error array for multiple items. The return error array is an optional field

determined by the calling routine. If the error array field contains a variable, the error array (if one) is returned.

Status codes 1 – 7 and status code 12 will stop the search.

Figure 19: Status Return Codes

- 1) Null or Zero - no errors encountered
- 2) Area Not Sent. The look-up stops.
- 3) Lookup Value Not Sent. The look-up stops.
- 4) Return Value Not Sent. The look-up stops.
- 5) Improper Search Area. The look-up stops.
- 6) Single Item Not Found in ORDERABLE ITEMS File 101.43. The look-up stops.
- 7) Single Item Not in Area. The look-up stops.
- 8) Partial Lookup Error. The look-up stops.
- 9) Orderable Items File Does Not Have Lab Pointer for Item. The look-up goes to next item, if one.
- 10) Orderable Item Lab Pointer Not Found in Lab File. The look-up goes to next item, if one.
- 11) Type of Lookup not sent. The look-up stops.

The Error array will contain details related to status codes 8, 9, 10, and 11. Below is a sample of error array items. Laboratory error array items have been combined into the single sample.

The error message contains the type of error, the IEN from the 101.43 file : the items name from the 101.43 file : if appropriate the IEN for the Laboratory Test file (#60).

Figure 20: Sample Error Array

```
Orderable Item Lab Pointer Not Found in Lab File. 9089:CD3-FLOW:6271
Orderable Item File Does Not Have a Lab File Number Associated. 9716:COCC.IMMITIS-
LATEX:6526
```

8 Option Routines

8.1 HDI SDO Look-up

HDI REQUEST SDO [HDISDO REQUEST SDO]

HDISDOL.INT HDISDOL ;BPFO/DTG - LOOK UP SDO CODES FOR ORDERABLE
ITEMS; Apr 07, 2018@12:42

HDISDOLL.INT HDISDOLL ;BPFO/DTG - DISPLAY LOOKUP ITEMS FOR
LABORATORY; Apr 07, 2018@12:42

8.2 HDI SDO Server Side MailMan

HDI SDO ORDER SERVER [HDISDOSERVER]

HDISDSR.INT HDISDSR ;BPFO/DTG - HDI MAILMAN SERVER FOR COLLECTING SDO; Apr 07, 2018@12:42

HDISDSR1.INT HDISDSR1 ;BPFO/DTG - HDI MAILMAN SERVER COLLECT SDO DATA; Apr 07, 2018@12:42

HDISDSRL.INT HDISDSRL ;BPFO/DTG - HDI MAILMAN SERVER COLLECT ITEMS FOR LABORATORY; Apr 07, 2018@12:42

8.3 HDI SDO API

HDI SDO API [HDISDO API]

HDISDOC.INT HDISDOC ;BPFO/DTG - COMPILE SDO LIST FROM 101.43; Apr 07, 2018@12:42

HDISDOCL.INT HDISDOCL ;BPFO/DTG - COLLECT LABORTORY ITEMS FOR SDO LIST; Apr 07, 2018@12:42

Glossary

Term	Definition
.001 FIELD	A field containing the internal entry number of the record.
.01 FIELD	The one field that <i>must</i> be present for every file and file entry. It is also called the NAME field. At a file's creation the .01 field is given the label NAME. This label can be changed.
ABBREVIATED RESPONSE	This feature allows you to enter data by typing only the first few characters for the desired response. This feature will <i>not</i> work unless the information is already stored in the computer.
ACCESS CODES	In VA FileMan, a string of codes that determines your security access to files, fields, and templates. In Kernel, you enter an Access Code to identify yourself during sign on.
ALERTS	Brief online notices that are issued to users as they complete a cycle through the menu system. Alerts are designed to provide interactive notification of pending computing activities, such as the need to reorder supplies or review a patient's clinical test results. Along with the alert message is an indication that the View Alerts common option should be chosen to take further action.
ALTERNATE EDITOR	One of the text editors available for use from VA FileMan. Editors available vary from site to site. They are entries in the ALTERNATE EDITOR file (#1.2).
ANSI	American National Standards Institute.
ANSI M	The M (formerly known as MUMPS) programming language is a standard recognized by the American National Standard Institute (ANSI). M stands for Massachusetts Utility Multi-Programming System.
API	Application Program Interface
AUDIT TRAIL	The record or log of an ongoing audit.
AUDITING	The monitoring and recording of computer use.
BACKWARD POINTER	A pointer to your current file from another file; used in the extended pointer syntax.
BOOLEAN EXPRESSION	A logical comparison between values yielding a true or false result. In M, zero means false and non-zero (often one) means true.
CALLABLE ENTRY POINT	An authorized developer call that can be used in any VistA application package. The DBA maintains the list of DBIC-approved entry points.
CANONIC NUMBER	A number with no leading zeroes and no trailing zeroes after a decimal point.
CAPTION	In ScreenMan, a label displayed on the screen. Captions often identify fields that are to be edited.
CHECKSUM	The result of a mathematical computation involving the individual characters of a routine or file.
COMMAND AREA	In ScreenMan, the bottom portion of the screen used to display help information and to accept user commands.

Term	Definition
COMMON MENU	The Common menu consists of options that are available to all users. Entering two question marks at the menu select prompt displays any secondary menu options available to the signed-on user, along with the common options available to all users.
CONTROLLED SUBSCRIPTION INTEGRATION AGREEMENT	This applies where the IA describes attributes/functions that <i>must</i> be controlled in their use. The decision to restrict the IA is based on the maturity of the custodian package. Typically, these IAs are created by the requesting package based on their independent examination of the custodian package's features. For the IA to be approved the custodian grants permission to other VistA packages to use the attributes/functions of the IA; permission is granted on a one-by-one basis where each is based on a solicitation by the requesting package. An example is the extension of permission to allow a package (e.g., Spinal Cord Dysfunction) to define and update a component that is supported within the Health Summary package file structures.
CURSOR	On your display terminal, the line or rectangle identifying where your next input is placed on the screen.
DATA	A representation of facts, concepts, or instructions in a formalized manner for communication, interpretation, or processing by humans or by automatic means. The information you enter for the computer to store and retrieve. Characters that are stored in the computer system as the values of local or global variables. VA FileMan fields hold data values for file entries.
DATA ATTRIBUTE	A characteristic unit of data such as length, value, or method of representation. VA FileMan field definitions specify data attributes.
DATA DICTIONARY	A record of a file's structure, its elements (fields and their attributes), and relationships to other files. Often abbreviated as DD.
DATA DICTIONARY ACCESS	A user's authorization to write/update/edit the data definition for a computer file. Also known as DD Access.
DATA INTEGRITY	This term refers to the condition of patient records in terms of completeness and correctness. It also refers to the process in which a particular patient's data is synchronized at all the sites in which that patient receives care.
DATA TYPE	The kind of data stored in a field. For example, the following are VA FileMan DATA TYPE field values: NUMERIC COMPUTED WORD-PROCESSING
DATABASE	An organized collection of data spanning many files. Often, all the files on a system constitute that system's database.
DATABASE MANAGEMENT SYSTEM (DBMS)	A collection of software that handles the storage, retrieval, and updating of records in a database. A Database Management System (DBMS) controls redundancy of records and provides the security, integrity, and data independence of a database.
DATABASE, NATIONAL	A database that contains data collected or entered for all VHA sites.
DBA	Database Administrator, oversees software development with respect to VistA Standards and Conventions (SAC) such as namespacing. Also, this term refers to the Database Administration function and staff.

Term	Definition
DBIA	Database Integration Agreement (see Integration Agreements [IA]).
DECENTRALIZED HOSPITAL COMPUTER PROGRAM (DHCP)	See VISTA.
DEFAULT	A computer-provided response to a question or prompt. The default might be a value pre-existing in a file. Often, you can change a default.
DEPARTMENT OF VETERANS AFFAIRS	The Department of Veterans Affairs (formerly known as the Veterans Administration.)
DEVICE	Peripheral connected to the host computer, such as a printer, terminal, disk drive, modem, and other types of hardware and equipment associated with a computer. The host files of underlying operating systems may be treated like devices in that they may be written to (e.g., for spooling).
DEVICE PROMPT	A Kernel prompt at which you identify where to send your output.
DHCP	Decentralized Hospital Computer Program (now known as Veterans Health Information Systems and Technology Architecture [VistA]). VistA software, developed by VA, is used to support clinical and administrative functions at VA Medical Centers nationwide. It is written in M and, via the Kernel, runs on all major M implementations regardless of vendor. VistA is composed of packages that undergo a verification process to ensure conformity with namespacing and other VistA standards and conventions.
DICTIONARY	Database of specifications of data and information processing resources. The VA FileMan database of data dictionaries is stored in the FILE of files (#1).
DIRECT MODE UTILITY	A developer call that is made when working in direct programmer mode. A direct mode utility is entered at the MUMPS prompt (e.g., >D ^XUP). Calls that are documented as direct mode utilities <i>cannot</i> be used in application software code.
DOMAIN	A site for sending and receiving mail.
DOUBLE QUOTES (“”)	Symbol used in front of a Common option's menu text or synonym to select it from the Common menu. For example, the five-character string “TBOX” selects the User's Toolbox Common option.
EDIT WINDOW	In ScreenMan, the area in which you enter or edit data. It is highlighted with either reverse video or an underline. In Screen Editor, the area in which you enter and edit text; the area between the status bar and the ruler.
ENTRY	A record in a file. “Entry” and “record” are used interchangeably.
ERROR TRAP	A mechanism to capture system errors and record facts about the computing context such as the local symbol table, last global reference, and routine in use. Operating systems provide tools such as the %ER utility. The Kernel provides a generic error trapping mechanism with use of the ^%ZTER global and ^XTER* routines. Errors can be trapped and, when possible, the user is returned to the menu system.
EXTENDED POINTERS	A means to reference fields in files other than your current file.
FACILITY	Geographic location at which VA business is performed.

Term	Definition
FIELD	In an entry, a specified area used to hold values. The specifications of each VA FileMan field are documented in the file's data dictionary.
FIELD NUMBER	The unique number used to identify a field in a file. A field can be referenced by “#” followed by the field number.
FILE	A set of related records (or entries) treated as a unit.
FILE MANAGER (VA FILEMAN)	VistA Database Management System (DBMS). The central component of Kernel that defines the way standard VistA files are structured and manipulated.
FORM	In ScreenMan, a group of one or more pages that comprise a complete transaction. Comparable to an INPUT template.
FORUM	The central E-mail system within VistA. Developers use FORUM to communicate at a national level about programming and other issues. FORUM is located at the OI Field Office—Washington, DC (162-2).
FREE TEXT	A DATA TYPE field value that can contain any printable characters.
FULL-SCREEN EDITING	The ability to enter data in various locations on the two-dimensional computer display. Compare to scrolling mode.
GLOBAL VARIABLE	Variable that is stored on disk (M usage).
HDI	Health Data & Informatics
HELP PROMPT	The brief help that is available at the field level when entering one or more question marks.
HISTOGRAM	A type of bar graph that indicates frequency of occurrence of particular values.
ICR	Integration Control Registration
IDENTIFIER	In VA FileMan, a field that is defined to aid in identifying an entry in conjunction with the NAME field.
INDEX	An ordered list used to speed retrieval of entries from a file based on a value in some field or fields. The term “simple index” refers to an index that stores the data for a single field; the term “compound index” refers to an index that stores the data for more than one field. Indexes are created and maintained via cross-references.
INPUT TEMPLATE	A pre-defined list of fields that together comprise an editing session.
INTEGRATION AGREEMENTS (IA)	Integration Agreements define agreements between two or more VistA software applications to allow access to one development domain by another. VistA software developers are allowed to use internal entry points (APIs) or other software-specific features that are <i>not</i> available to the general programming public. Any software developed for use in the VistA environment is required to adhere to this standard; as such, it applies to vendor products developed within the boundaries of DBA assigned development domains (e.g., MUMPS AudioFax). An IA defines the attributes and functions that specify access. The DBA maintains and records all IAs in the Integration Agreement database on FORUM. Content can be viewed using the DBA menu or the Health Systems Design & Development's Web page.
INTERNAL ENTRY NUMBER	The number used to identify an entry within a file. Every record has a unique internal entry number. Often abbreviated as IEN.
INTERNAL ENTRY NUMBER (IEN)	The number used to identify an entry within a file. Every record has a unique internal entry number.

Term	Definition
IRM	Information Resource Management. A service at VA medical centers responsible for computer management and system security.
ISO	Information Security Officer.
KERNEL	A VISTA software package that functions as an intermediary between the host operating system and VISTA application packages. Kernel includes installation, menu, security, and device services.
KEY	A group of fields that, taken collectively, uniquely identifies a record in a file or subfile. All fields in a key <i>must</i> have values. The term “simple key” refers to keys that are composed of only one field; the term “compound key” refers to keys that are composed of more than one field. Keys are stored in the KEY file (#.31)
LAN	Local Area Network.
LAYGO	A user’s authorization to create a new entry when editing a computer file. An acronym for Learn As You Go .
LIM	Laboratory Information Manager
LINE EDITOR	The VA FileMan editor that lets you input and change text on a line-by-line basis. The Line Editor works in scrolling mode. See Screen Editor.
LOINC	Logical Observation Identifier Names and Codes.
LOOKUP	To find an entry in a file using a value for one of its fields.
M (ANSI STANDARD)	Massachusetts General Hospital Utility Multi-Programming System (M, formerly named MUMPS) is a software package, which consists of a high level programming language and a built-in database.
MAILMAN	An electronic mail system (e-mail) that allows you to send messages to and receive them from other users via the computer. It is part of VISTA.
MENU	A list that includes the names of options from which you can select an activity.
MENU SYSTEM	The overall Menu Manager logic as it functions within the Kernel framework.
MENU TEXT	The descriptive words that appear when a list of option choices is displayed. Specifically, the Menu Text field of the OPTION file (#19). For example, User’s Toolbox is the menu text of the XUSERTOOLS option. The option’s synonym is TBOX.
MLTF	MASTER LABORATORY TEST file (#66.3).
MUMPS	Abbreviated as M. The American National Standards Institute (ANSI) computer language used by VA FileMan and throughout VISTA. The acronym MUMPS stands for M assachusetts G eneral H ospital U tility M ulti P rogramming S ystem.
NAME FIELD	The one field that <i>must</i> be present for every file and file entry. It is also called the .01 field. At a file’s creation the .01 field is given the label NAME. This label can be changed.
NAMESPACE	A convention for naming VistA package elements. The Database Administrator (DBA) assigns unique character strings for package developers to use in naming routines, options, and other package elements so that packages may coexist. The DBA also assigns a separate range of file numbers to each package.
NAVIGATION	Navigation meanings: Switching your reference point from one file to another.

Term	Definition
	Moving your cursor around a terminal display or a document using cursor keys and other commands.
NDS	Native Domain Standardization
NODE	In a tree structure, a point at which subordinate items of data originate. An M array element is characterized by a name and a unique subscript. Thus the terms: node, array element, and subscripted variable are synonymous. In a global array, each node might have specific fields or “pieces” reserved for data attributes such as name.
NON-CANONIC NUMBER	A number with either leading zeroes or trailing zeroes after a decimal point. M treats non-canonic numbers as text instead of as numbers.
NON-NULL	A value other than null. A space and zero are non-null values.
NTRT	New Term Rapid Turnaround (NTRT). The process to distribute standard reference files to VistA environments.
NULL	Empty. A field or variable that has no value associated with it is null.
NULL RESPONSE	When replying to a prompt, pressing only the Enter key, abbreviated as <Enter> , to enter nothing.
NUMERIC EXPRESSION	An expression whose value is a number. Compare to string expression.
NUMERIC FIELD	Response that is limited to a restricted number of digits. It can be dollar valued or a decimal figure of specified precision.
OED	Office of Enterprise Development
OE/RR	Order Entry/Results Reporting
OI&T	Office of Information Technology
OIFO	Office of Information Field Office.
OPERATOR	One of the processes done to the elements in an expression to create a value.
OPTION	A computing activity that you can select, usually a choice from a menu.
OPTION NAME	Name field in the OPTION file (e.g., XUMAIN for the option that has the menu text “Menu Management”). Options are namespaced according to VistA conventions monitored by the DBA.
PACKAGE (SOFTWARE)	The set of programs, files, documentation, help prompts, and installation procedures required for a given application (e.g., Laboratory, Pharmacy, and PIMS). A VistA software environment is composed of elements specified via the PACKAGE file (#9.4). Elements include files, associated templates, namespaced routines, and namespaced file entries from the OPTION, HELP FRAME, BULLETIN, and FUNCTION files. As public domain software, VistA software can be requested through the Freedom of Information Act (FOIA).
PATTERN MATCH	In M, an operator that compares the contents of a variable or literal to a specified pattern of characters or kinds of characters.
POC	Plan of Care (Pending Orders)
POINTER TO A FILE	A DATA TYPE field value that contains an explicit reference to an entry in a file. POINTER TO A FILE-type fields are used to relate files to each other.

Term	Definition
POPUP PAGE	In ScreenMan, a page that overlays the regular ScreenMan screen in order to present the contents of a selected Multiple.
PREFERRED EDITOR	The editor always entered when you access a WORD-PROCESSING-type field; your default editor. Kernel <i>must</i> be present to establish a Preferred Editor.
PRIMARY KEY	A Data Base Management System construct, where one or more fields uniquely define a record (entry) in a file (table). The fields are required to be populated for every record on the file, and are unique, in combination, for every record on the file.
PRIMARY MENU	The list of options presented at sign-on. Each user <i>must</i> have a primary menu in order to sign-on and reach Menu Manager. Users are given primary menus by Information Resource Management (IRM). This menu should include most of the computing activities the user needs.
PRINT TEMPLATE	The stored specifications of a printed report, including fields to be printed and formatting instructions.
PRIVATE INTEGRATION AGREEMENT	Where only a single application is granted permission to use an attribute/function of another VistA package. These IAs are granted for special cases, transitional problems between versions, and release coordination. A Private IA is also created by the requesting package based on their examination of the custodian package's features. Example: one package distributes a patch from another package to ensure smooth installation.
PROMPT	A question or message from the computer requiring your response.
RECORD	A set of data pertaining to a single entity in a file; an entry in a file.
RECORD NUMBER	See Internal Entry Number.
RELATIONAL NAVIGATION	Changing your current (or primary) file reference to another file. Relational navigation is accomplished by using the extended pointer syntax without specifying a field in the referenced file.
REQUIRED FIELD	A field that <i>cannot</i> be left null for an entry.
REVERSE VIDEO	The reversal of light and dark in the display of selected characters on a video screen. For example, if text is normally displayed as black letters on a white background, reverse video presents the text as white letters on a black background or vice versa.
ROUTINE	Program or a sequence of instructions called by a program that may have some general or frequent use. M routines are groups of program lines, which are saved, loaded, and called as a single unit via a specific name.
SAC	Standards and Conventions. Through a process of quality assurance, all VistA software is reviewed with respect to SAC guidelines as set forth by the Standards and Conventions Committee (SACC).
SACC	VistA Standards and Conventions Committee. This Committee is responsible for maintaining the SAC.
SCATTERGRAM	A graph in which occurrences of two fields are displayed on an X-Y coordinate grid to aid in data analysis.
SCREEN EDITOR	VA FileMan Screen-oriented text editor. It can be used to enter data into any WORD-PROCESSING field using full-screen editing instead of line-by-line editing. See Line Editor.

Term	Definition
SCREENMAN	The set of routines that supports Screen-oriented data editing and data display.
SCREENMAN FORMS	Screen-oriented display of fields, for editing or simply for reading. VA FileMan Screen Manager is used to create forms that are stored in the FORM file (#.403) and exported with a software application. Forms are composed of blocks (stored in the BLOCK file [#.404]) and can be regular, full screen pages or smaller, "popup" pages.
SCREEN-ORIENTED	A computer interface in which you see many lines of data at a time and in which you can move your cursor around the display screen using screen navigation commands. Compare to Scrolling Mode.
SCROLLING MODE	The presentation of the interactive dialogue one line at a time. Compare to Screen-oriented.
SDO	Standards Development Organization
SEARCH TEMPLATE	The saved results of a search operation. Usually, the actual entries found are stored in addition to the criteria used to select those entries.
SECURITY KEY	The purpose of Security Keys is to set a layer of protection on the range of computing capabilities available with a particular software package. The availability of options is based on the level of system access granted to each user.
SENSITIVE PATIENT	Patient whose record contains certain information, which may be deemed sensitive by a facility, such as political figures, employees, patients with a particular eligibility or medical condition. If a shared patient is flagged as sensitive at one of the treating sites, a bulletin is sent to the DG SENSITIVITY mail group at each subscribing site telling where, when, and by whom the flag was set. Each site can then review whether the circumstances meet the local criteria for sensitivity flagging.
SEPG	Software Engineering Process Group (SEPG) (renamed the Engineering Process Group [EPG])
SERVER	The computer where the data and the Business Rules reside. It makes resources available to client workstations on the network. In VistA, it is an entry in the OPTION file (#19). An automated mail protocol that is activated by sending a message to a server at another location with the "S.server" syntax. A server's activity is specified in the OPTION file (#19) and can be the running of a routine or the placement of data into a file.
SET OF CODES	A DATA TYPE field value where a short character string is defined to represent a longer value.
SIMPLE EXTENDED POINTERS	An extended pointer that uses a pre-existing pointer relationship to access entries in another file.
SITE MANGER/IRM CHIEF	At each site, the individual who is responsible for managing computer systems, installing and maintaining new modules, and serving as a liaison to the CIO Field Offices.
SOFTWARE (PACKAGE)	The set of programs, files, documentation, help prompts, and installation procedures required for a given application (e.g., Laboratory, Pharmacy, and PIMS). A VistA software environment is composed of elements specified via the PACKAGE file (#9.4). Elements include files, associated templates, namespaced routines, and namespaced file entries from the OPTION, HELP FRAME, BULLETIN, and FUNCTION files. As public domain software, VistA software can be requested through the Freedom of Information Act (FOIA).

Term	Definition
SORT	To place items in order, often in alphabetical or numeric sequence.
SORT TEMPLATE	The stored record of sort specifications. It contains sorting order as well as restrictions on the selection of entries. Used to prepare entries for printing.
SPACEBAR RETURN	You can answer a VA FileMan prompt by pressing the spacebar and then the Return key. This indicates to VA FileMan that you would like the last response you were working on at that prompt recalled.
SPECIAL QUEUING	Option attribute indicating that Task Manager should automatically run the option whenever the system reboots.
STUFF	To place values directly into a field, usually with no user interaction.
SUBENTRY	An entry in a Multiple; also called a Subrecord.
SUBFIELD	A field in a Multiple.
SUBFILE	The data structure of a Multiple. In many respects, a Subfile has the same characteristics as a File.
SUBSCRIPT	A symbol that is associated with the name of a set to identify a particular subset or element. In M, a numeric or string value that: is enclosed in parentheses, is appended to the name of a local or global variable, and identifies a specific node within an array.
SUPPORTED REFERENCE INTEGRATION AGREEMENT	This applies where any VistA application may use the attributes/functions defined by the IA (these are also called "Public "). An example is an IA that describes a standard API such as DIE or VADPT. The package that creates/maintains the Supported Reference <i>must</i> ensure it is recorded as a Supported Reference in the IA database. There is no need for other VistA packages to request an IA to use these references; they are open to all by default.
TASK MANAGER	Kernel module that schedules and processes background tasks (also called TaskMan)
TEMPLATE	Means of storing report formats, data entry formats, and sorted entry sequences. A template is a permanent place to store selected fields for use at a later time. Edit sequences are stored in the INPUT TEMPLATE file (#.402), print specifications are stored in the PRINT TEMPLATE file (#.4), and search or sort specifications are stored in the SORT TEMPLATE file (#.401).
TERMINAL EMULATION	Using one kind of terminal or computer display to mimic another kind. Often used with PC remote communication applications.
TERMINAL TYPE	The designation of the kind of computer peripheral being used (e.g., the kind of video display or printer). Full terminal type functionality is supplied by Kernel.
TRIGGER	A type of VA FileMan cross-reference. Often used to update values in the database given certain conditions (as specified in the trigger logic). For example, whenever an entry is made in a file, a trigger could automatically enter the current date into another field holding the creation date.
TRUTH TEST	An evaluation of an expression yielding a true or false result. In M, usually a 1 (true) or a 0 (false) is returned from a truth test.
UCI	User Class Identification, a computing area. The MGR UCI is typically the Manager's account, while VAH or ROU may be Production accounts.

Term	Definition
UP-ARROW	The ^ character (caret); used in VA FileMan for exiting an option or canceling a response. Also used in combination with a field name or prompt to jump to the specified field or prompt.
UPLOAD	Send a file from one computer system to another (usually using communications software).
USER ACCESS	This term is used to refer to a limited level of access, to a computer system, which is sufficient for using/operating a package, but does <i>not</i> allow programming, modification to data dictionaries, or other operations that require programmer access. Any option, for example, can be locked with the key XUPROGMODE, which means that invoking that option requires programmer access. The user's access level determines the degree of computer use and the types of computer programs available. The System Manager assigns the user an access level.
VA	Department of Veterans Affairs
VA FILEMAN	VistA Database Management System (DBMS). The central component that defines the way standard VistA files are structured and manipulated.
VAMC	Veterans Affairs Medical Center.
VARIABLE	Character (or group of characters) that refers to a value. M (previously referred to as MUMPS) recognizes 3 types of variables: local variables, global variables, and special variables. Local variables exist in a partition of main memory and disappear at sign-off. A global variable is stored on disk, potentially available to any user. Global variables usually exist as parts of global arrays. The term "global" may refer either to a global variable or a global array. A special variable is defined by systems operations (e.g., \$TEST).
VERIFY CODE	The Kernel's Sign-on/Security system uses the Verify code to validate the user's identity. This is an additional security precaution used in conjunction with the Access code. Verify codes shall be at least eight characters in length and contain three of the following four kinds of characters: Letters (lowercase) Letters (uppercase) Numbers Characters that are neither letters nor numbers (e.g., "#", "@" or "\$"). If entered incorrectly, the system does <i>not</i> allow the user to access the computer. To protect the user, both codes are invisible on the terminal screen.
VHA	Veterans Health Administration.
VISN	Veterans Integrated Service Network
VistA	The Veterans Health Information Systems and Technology Architecture (VistA), within the Department of Veterans Affairs, is the component of the Veterans Health Administration that develops software and installs, maintains, and updates compatible computer systems in VA medical facilities. (Previously known as the Decentralized Hospital Computer Program [DHCP].)
VPID	Veterans Administration Personal Identifier.
VUID	The VA unique identifier.
WAN	Wide Area Network.

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