VHA Point of Service (Kiosks) Phase II

Technical Manual



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# 

## Orientation

### *How to Use this Manual*

This manual provides instructions on the use of the VA Point of Service (Kiosks) (VPS) VistA package.

### *Intended Audience*

The intended audience of this manual is the following stakeholders:

* Product Development (PD) VistA legacy development teams.
* Information Resource Management (IRM) system administrators at Department of Veterans Affairs (VA) sites who are responsible for computer management and system security on VistA M Servers.
* Information Security Officers (ISOs) at VA sites responsible for system security.
* Health Product Support (HPS) Information Technology (IT) Specialists who provide application support to VA end-users.

### *Legal Requirements*

There are no special legal requirements involved in the use of the VPS VistA package.

### *Disclaimers*

This manual provides an overall explanation the functionality included in the VPS VistaA package. This guide does not attempt to explain how the overall VistA programming system is integrated and maintained.

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 may find at these locations. Such links are provided and are consistent with the stated purpose of this VA Intranet Service.

### *Documentation Conventions*

The following symbols are used throughout this document to alert the reader to special information.

 **NOTE/REF:** Used to denote general information including references to additional reading material.

 **CAUTION / RECOMMENDATION / DISCLAIMER:** Used to caution the reader to take special notice of critical information.

Snapshots of computer online displays (screen captures) and computer source code are shown in non-proportional font and are enclosed within a box. User responses to displayed prompts are ***bold italic***typeface. Software reserved words are displayed in **bold** font**.**

References to “<**Enter**>” within the screen captures indicate that the user should press the <**Enter**> key on the keyboard. Other special keys are represented within **< >** angle brackets and indicate the user should press the indicated key on the keyboard. For example, **<PF1>** directs the user to press the **PF1** key on the keyboard.

The following conventions are used to display test data:

* Social Security Numbers (SSN) for test patients are prefixed with five zero digits e.g. 000009999.
* Patient names are formatted as [Application Name]PATIENT,[N] e.g. VPSPATIENT, ONE.
* User names are formatted as [Application Name]USER[N] e.g. VPSUSER, ONE.

 This guide refers to the M programming language as M. Under the 1995 American National Standards Institute (ANSI) standard, M is the primary name of the MUMPS programming language, and MUMPS is considered an alternate name.

### *Commonly Used Terms*

Table : Commonly Used VPS Package Terms

| Term | Description |
| --- | --- |
| Client | A single term used interchangeably to refer to a user, the workstation (i.e., PC), and the portion of the program that runs on the workstation. |
| Component | A software object that contains data and code. A component may or may not be visible. |
| GUI | The Graphical User Interface application that is developed for the client workstation. |
| Host | The term Host is used interchangeably with the term Server. |
| Server | The computer where the data and the RPC Broker remote procedure calls (RPCs) reside. |

### *Technical Information Online*

Project documentation for VPS Kiosks may be found in the Technical Services Project Repository ([TSPR](http://tspr.vista.med.va.gov/warboard/anotebk.asp?proj=1682&Type=Active)). Other online technical information from M Server-based software file, routine and global documentation may be generated using Kernel, MailMan and VA FileMan utilities.

### *Help Prompts*

There are no online help prompts provided for VPS.

### *Data Dictionary*

Technical information on VistA M Server-based files is stored in the VA FileMan Data Dictionary. The VA FileMan List File Attributes option on the Data Dictionary Utilities submenu may be used to view the attributes of VistA M Server files.

### *Assumptions*

This guide is written with the assumption that the reader is familiar with:

* Kernel – VistA M Server software
* Remote Procedure Call (RPC) Broker – VistA Client/Server software
* VA FileMan data structures and terminology – VistA M Server software
* Microsoft Windows
* M programming language
* Javascript
* Java Enterprise Edition
* Redhat Linux
* JBoss AS (Application Server)
* Delphi

### *References*

The following references support the reader’s understanding of the operation and functioning of the VPS remote procedures:

* *VPS Technical Manual (this guide)*
* *RPC Broker Release Notes*
* *RPC Broker Developer’s Guide*
* *RPC Broker Systems Management Guide*
* *RPC Broker TCP/IP Supplement, Patch XWB\*1.1\*35 and XWB\*1.1\*44*
* *RPC Broker Technical Manual*
* *RPC Broker User Guide*
* *Clinical Reminders Version 2.0 PXRM\*2.0\*4 Technical Manual, (October 2006)*
* *Patient Information Management Systems (PIMS) Patient Registration, Admission, Discharge, Transfer, And Appointment Scheduling Technical Manual, (November 2013)*
* *Health Summary User Manual, Version 2.7 (August 2014)*
* *Text Integration Utilities (TIU) Technical Manual, TIU\*1\*263 (Jun3 2014)*

These references may be downloaded from the [VA Software Document Library (VDL) Website](http://www.va.gov/vdl/).

# Introduction

The *VPS Technical Manual* provides descriptive information and instruction on the use of VPS package remote procedures (RPCs) implemented within VA's Veterans Health Information Systems and Technology Architecture (VistA) environment. This document is intended for systems managers—Information Resource Management (IRM) personnel who are responsible for implementing and maintaining this software, application programmers, and developers. It acquaints system managers with the software structure and functionality of the VPS RPC routines and files that comprise this software.

## Product Overview

VPS RPCs that extend consuming application integration with multiple VistA packages, and provides data extracted from the facilities’ patient-related files. The RPCs either extract data from associated VistA files or enhance the output and initiate print jobs through established VistA and/or VetLink mechanisms.

VistA patch VPS\*1.0\*4 focuses on the following three (3) functional areas:

1. **Clinical Reminders Integrating Kiosks (CRIK) (Phase 1):** VPS\*1.0\*4 integrates clinical reminders into Kiosk/VetLink. VPS\*1.0\*4 retrieves system level National Clinical Reminders from associated VistA files for presentation to clinic staff through the staff-facing Kiosk client.
2. **VPS Enhanced Get Patient Demographic:** VPS\*1.0\*4 expands the patient data provided to VetLink to include patient safety and behavioral flags, laboratory orders, consult requests, eligibility history and expanded demographic data.
3. **Specimen/Wristband Label (VistA Printing Phase 2):** VPS\*1.0\*4 integrates VistA printing capabilities into VetLink. VPS\*1.0\*4 RPCs accept wristband patient information and patient specimen label information from VetLink and create VistA print jobs directed to clinic network printers.

VistA patch VPS\*1.0\*5 focuses on the following functional areas:

1. **Appointment Status Integration**: this effort is to analyze, define, and document the implementation design of the integration between the VPS program and existing VistA appointment module. This provides staff with the ability to use VetLink to see appointments, by using the staff-friendly GUI, pertinent to them and their user template. A bi-directional exchange of appointment statuses between VistA and VetLink will be built such that VetLink can be kept apprised of appointments in various statuses to include not checked in, checked in, partially checked out, checked out, canceled, no-showed, etc.
2. **Clinical Surveys**: this effort is to analyze, define, and document the implementation design of new Clinical Screening Questionnaires (CSQ) module intended to improve delivery of a patient care preventative health component and clinician access to patient information. Clinical Screening Questionnaires will improve the current process by efficiently allowing the patient to self-report on areas of concern to our Veteran population by completing the appropriate questionnaire during their clinic visit. This module will allow the patient to accurately discuss and verify their past and current clinical assessments history and this will help identify any preventative care actions needed by the clinical staff during the current visit and/or perform any necessary interventions or referrals

VistA patch VPS\*1.0\*3 provides:

1. **Medication Review and Allergy Review (MRAR):** RPCs that interface VetLink with VAs MRAR process, and supports the VA National Medication Reconciliation Directive. VPS\*1.0\*3 RPCs provide real-time storage of patient self-reported medication and allergy data entered at the Kiosk to VistA VPS MRAR data files. Additionally, VPS\*1.0\*3 returns this collected MRAR data to VetLink to allow clinic staff and clinicians to view, update and verify the patient’s self-reported MRAR data.
2. **MRAR Analysis:** RPCs to support MRAR statistical analysis to report on the time required to complete patient MRAR reviews, reasons for incomplete reviews, and other clinic efficient use variables. VPS\*1.0\*3 also provides the capability for Veteran Affair Medical Center (VAMC) Clinical Coordinators to create MRAR patient data objects (PDOs) that may be embedded into Text Integration Utilities (TIU) notes.

VistA patch VPS\*1.0\*15 provides:

1. **After Visit Summary**: RPCs to support the VPS AVS J2EE in generating an after visit summary of a patient’s outpatient clinic visit.

## Namespace Conventions

VPS is the namespace assigned to VA Point of Service (Kiosks).

# Implementation and Maintenance

## Site Printer Configuration

Printers used to print patient labels and wristbands are required to be configured as network printers. Sites should perform the following steps to verify and/or modify the label and wristband printer configurations for label and wristband printers to be used by VPS.

To configure the label and/or wristband printers for VPS use WRITE access to DEVICE file #3.5 is required. If you do not have WRITE access to this file, please contact your local IRM to request the needed DEVICE file edits.

1. At the EVE menu, and select FM VA FileMan option

Core Applications ...

Device Management ...

FM VA FileMan ...

Manage Mailman ...

.

.

.

Capacity Planning ...

Select Systems Manager Menu <TEST ACCOUNT> Option:**FM** VA FileMan Version 22.0

Enter or Edit File Entries

Print File Entries

Search File Entries

Modify File Attributes

Inquire to File Entries

Utility Functions ...

Data Dictionary Utilities ...

Transfer Entries

Other Options ...

Select VA FileMan <TEST ACCOUNT> Option:

1. Select Inquire to File Entries option:   
     
   Select VA FileMan <TEST ACCOUNT> Option: **Inquire to File Entries**
2. Enter DEVICE FILE at the OUTPUT FROM WHAT FILE: prompt  
     
   OUTPUT FROM WHAT FILE: REMOTE PROCEDURE// **DEVICE**OUTPUT FROM WHAT FILE: REMOTE PROCEDURE// 3.5 DEVICE (420 entries)

Select DEVICE NAME:

1. Enter the name of the label printer or wristband printer you that may need to be configured at the Select DEVICE NAME prompt. This should be the name of a printer that has been setup and is in use at your facility. These instructions are not intended for configuring a “new” printer not currently in service.  
     
   Select DEVICE NAME: ZZ$CWPRT  **replace with your *label printer name or  
    wristband printer name***

ANOTHER ONE:

STANDARD CAPTIONED OUTPUT? Yes// **<ENTER>**

Include COMPUTED fields: (N/Y/R/B): NO// **B**

DISPLAY AUDIT TRAIL? No// NO **<ENTER>**

NUMBER: 1160 NAME: ZZ$CWPRT

**$I: |TCP|9100** ASK DEVICE: NO

ASK PARAMETERS: NO SIGN-ON/SYSTEM DEVICE: NO

LOCATION OF TERMINAL: /tmp ASK HOST FILE: NO

If the $I parameter contains |TCP|9100 as shown in step 4 in the example above, no further configuration is required and you may exit FileMan.

If the $I parameter does not contain |TCP|9100, then modify the $I, TYPE, OPEN PARAMETERS, and QUEUING fields for the device (label or wristband printer using the FileMan Edit Option (example shown in section 2.2.1) or the EVE Device Management Option (example shown in section 2.2.2).

### Device File Edits using FileMan

At the EVE menu, and select FM VA FileMan option

Core Applications ...

Device Management ...

FM VA FileMan ...

Manage Mailman ...

.

.

Capacity Planning ...

Select Systems Manager Menu <TEST ACCOUNT> Option:**FM** VA FileMan Version 22.0

Enter or Edit File Entries

Print File Entries

Search File Entries

Modify File Attributes

Inquire to File Entries

Utility Functions ...

Data Dictionary Utilities ...

Transfer Entries

Other Options ...

Select VA FileMan <TEST ACCOUNT> Option: **Enter or Edit File Entries**

INPUT TO WHAT FILE: DEVICE//**<ENTER>**EDIT WHICH FIELD: ALL// **$I**

You will edit the values of the **$I, TYPE, QUEUING, OPEN PARAMETERS** fields in the DEVICE file for the printer that VPS will use to print patient labels or wristbands.

THEN EDIT FIELD:**TYPE**

1 TYPE

2 TYPE-AHEAD

CHOOSE 1-2: **1**THEN EDIT FIELD: **QUEUING**

THEN EDIT FIELD: **OPEN PARAMETERS**

THEN EDIT FIELD: **<ENTER>**

Select DEVICE NAME: ZZ$CWPRT /tmp /tmp/output.txt

$I: /tmp/output.txt//**|TCP|9100**

TYPE: HOST FILE SERVER// **NETWORK CHANNEL**

QUEUING: **0** ALLOWED

OPEN PARAMETERS: "WNS"//**(“<printer ip address>”:9100:”ACS”::512:512)**

### Device File Edits using Device Management Option

From the EVE menu select the Device Management Option

Core Applications ...

Device Management ...

FM VA FileMan ...

Manage Mailman ...

Menu Management ...

Programmer Options ...

Operations Management ...

Spool Management ...

Information Security Officer Menu ...

Taskman Management ...

User Management ...

HL7 HL7 Main Menu ...

VDEF VDEF Configuration and Status ...

Application Utilities ...

Capacity Planning ...

Fileman Access for the OIG ...

Select Systems Manager Menu <TEST ACCOUNT> Option: **DEVICE MANAGEMENT**

Change Device's Terminal Type

Device Edit

Terminal Type Edit

Display Device Data

List Terminal Types

Clear Terminal

Loopback Test of Device Port

Send Test Pattern to Terminal

Out of Service Set/Clear

Clear all resources

Clear one Resource

Current Line/Port Address

DA Return Code Edit

Device Edit ...

Edit Line/Port Addresses

Line/Port Address report

Select Device Management <TEST ACCOUNT> Option: **DEVICE EDIT**

PQ Print Queue Edit

ALL Edit All Device Fields

HFS Host File Server Device Edit

RES Resource Device Edit

SPL Spool Device Edit

TRM TRM or VTRM Device Edit

Select Device Edit <TEST ACCOUNT> Option: **ALL** Edit All Device Fields

Select DEVICE NAME: WRISTBANDER EMERGENCY ROOM WRISTBAND PRT NLA0:

NAME: WRISTBANDER// **<ENTER>**

LOCATION OF TERMINAL: EMER RM WRISTBAND PRT

You will edit the values of the **$I, TYPE, QUEUING, OPEN PARAMETERS** fields in the DEVICE file for the printer that VPS will use to print patient labels or wristbands.

Replace **<ENTER>**

Select MNEMONIC: **<ENTER>**

LOCAL SYNONYM: **<ENTER>**

PURGE OLD PRINT QUEUE FILES: **<ENTER>**

$I: NLA0:// **|TCP|9100**

VOLUME SET(CPU): **<ENTER>**

SIGN-ON/SYSTEM DEVICE: **<ENTER>**

TYPE: HOST FILE SERVER// **NETWORK CHANNEL**

SUBTYPE: P-ZEBRA// **<ENTER>**

ASK DEVICE: **<ENTER>**

ASK PARAMETERS: **<ENTER>**

ASK HOST FILE: NO// **<ENTER>**

ASK HFS I/O OPERATION: NO// **<ENTER>**

QUEUING: NOT ALLOWED// **0** ALLOWED

OUT-OF-SERVICE DATE: **<ENTER>**

NEAREST PHONE: **<ENTER>**

KEY OPERATOR: **<ENTER>**

MARGIN WIDTH: 80// **<ENTER>**

PAGE LENGTH: 6550// **<ENTER>**

SUPPRESS FORM FEED AT CLOSE: YES// **<ENTER>**

SECURITY: **<ENTER>**

CLOSEST PRINTER: **<ENTER>**

FORM CURRENTLY MOUNTED: **<ENTER>**

OPEN PARAMETERS: ***(“<printer ip address>*”:9100:”ACS”::512:512)**

CLOSE PARAMETERS: **<ENTER>**

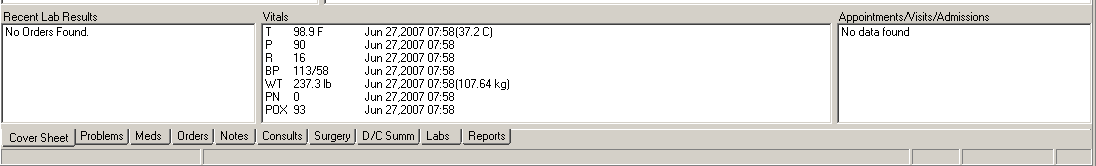
USE PARAMETERS: ***up arrow ^ to exit the option***

## Health Summary Configuration

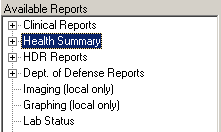
VPS\*1.0\*5 provides the capability to report on the clinical survey questionnaire (CSQ) activity of clinic patients in CPRS using Ad Hoc Health Summary (HS) reports.

Two default Ad Hoc HS reports, **CSQ HS TYPE** and **CSQ HS CALC TYPE** were created during the VPS\*1.0\*5 post-install process. Data for these Ad Hoc HS reports are populated from the default **VPS CSQ PDO** object, which was also created during the VPS\*1.0\*5 post-install process.

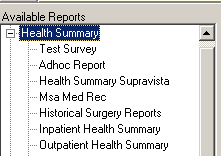
To execute the Ad Hoc HS reports CSQ HS TYPE or CSQ HS CALC TYPE, launch CPRS and select the patient whose survey responses are to be reported. Click the **Reports** tab



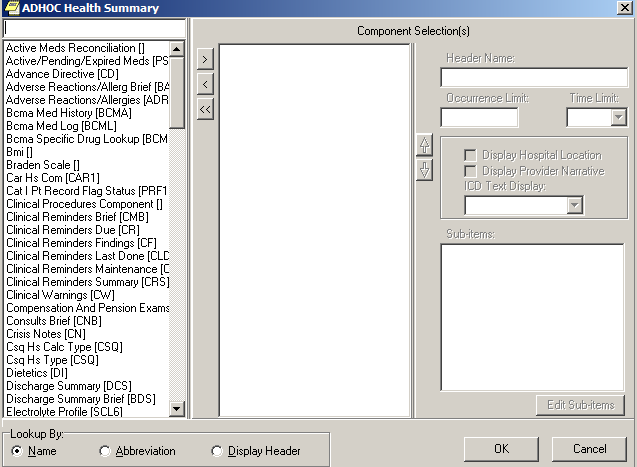
Click the plus sign to open the Health Summary Reports.



Click Adhoc Report in the Health Summary Reports list.

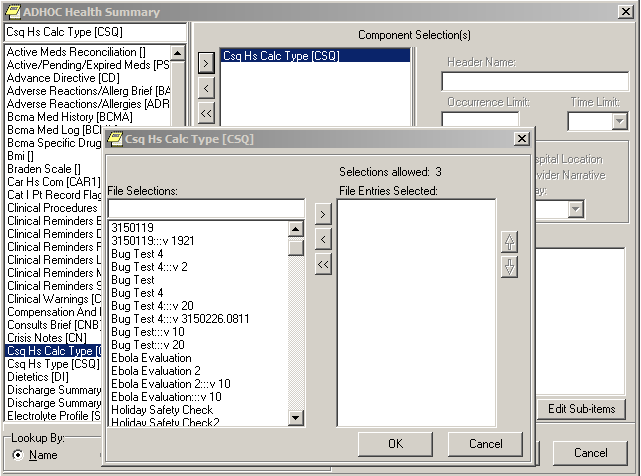


Click on an Adhoc report name, Csq Hs Calc Type [CSQ} and then click the right-arrow, **>**, in the Component Selections pane.

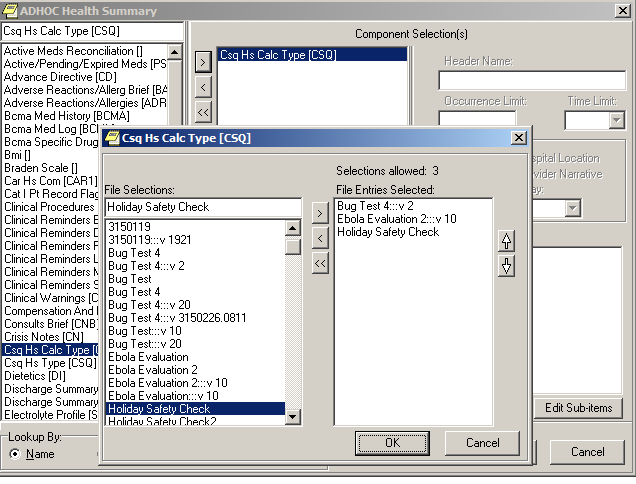


You may select multiple Adhoc reports for display. When you select either the Cs Hs Type [CSQ] or the Csq Hs Calc Type [CSQ] for reporting, you will be presented with a dialog to allow the selection of up to 3 clinical survey questionnaires to be included.

Click the CSQ name in the File Selection box, then click the right-arrow, **>**.

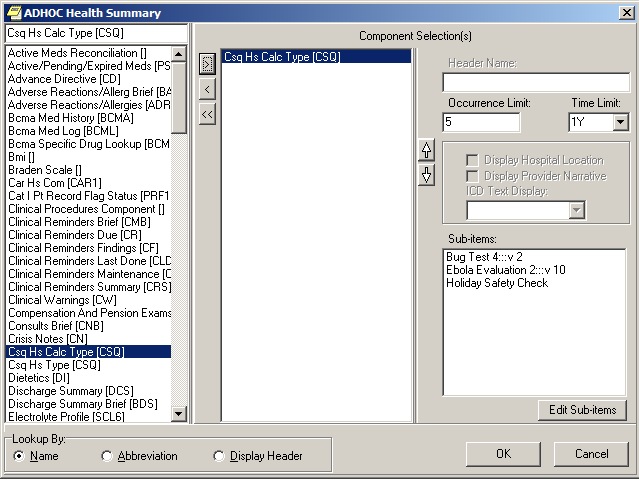


When all CSQs have been selected and appear in the **File Entries Selected** list, click the OK button



Click the OK button

Click the OK button again to generate a report of the patient’s survey responses for the selected CSQs. If a patient responded to a CSQ multiple times during the current year, the most recent occurrences up to the occurrence limit of 5 will be included in the report.



Following is sample output of the CSQ HS CALC TYPE report.

| 02/26/2015 18:54  \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* CONFIDENTIAL AD HOC SUMMARY pg. 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  XXXXX,XXX X XXX-XX-XXXX DOB: 12/26/1955  CSQ - CSQ HS CALC TYPE  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  BUG TEST 4:::V 2 - (max 5 occurrences or 1 year)  Patient Name: XXXXX,XXX X  Questionnaire IEN: 4  Questionnaire Name: BUG TEST 4  Date and Time Taken: FEB 25, 2015@08:11  Date and Time Last Modified: FEB 26, 2015@08:11  Questions and Answers:  What is your name? Programmer,%FOUR    - - - - - - - - - - - - - - - - - - - - -  Survey Calculated Value: VERSION Check  Value - SCORE;2F  Value - XYZ;55  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  EBOLA EVALUATION 2:::V 10 - (max 5 occurrences or 1 year)  No results  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  HOLIDAY SAFETY CHECK - (max 5 occurrences or 1 year)  No results  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  ------------ CSQ - CSQ HS CALC TYPE (max 5 occurrences or 1 year) ------------    No data available for BUG TEST 4:::V 2; Ebola Evaluation 2:::V 10;  HOLIDAY SAFETY CHECK  \*\*\* END \*\*\*\*\*\*\*\*\*\*\*\* CONFIDENTIAL AD HOC SUMMARY pg. 1 \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| --- |

## Create New Clinical Survey Questionnaire Patient Data Object

The VPS CSQ patient data object is the default PDO for VPS clinical survey questionnaires. Additional customized PDOs may be created by the Clinical Applications Coordinator (CAC). The CAC may specify Questionnaire internal entry number (IEN) and/or Questionnaire name, the number of occurrences of the questionnaire to be included, as well as a date range to filter VPS CSQ results to be included in a CSQ PDO.

The process for creating a new CSQ PDO is described in following sample screen captures.

1. Using the TIU Maintenance Menu option, select item 2, Document Definitions (Manager)

| Select OPTION NAME: **TIU MAINTENANCE MENU** TIU IRM MAINTENANCE MENU TIU Maintenance Menu  1 TIU Parameters Menu ...  2 Document Definitions (Manager) ...  3 User Class Management ...  4 TIU Template Mgmt Functions ...  5 TIU Alert Tools  6 Active Title Cleanup Report  7 TIUHL7 Message Manager  Title Mapping Utilities ...  Select TIU Maintenance Menu <TEST ACCOUNT> Option: **2 Document Definitions (Manager)** |
| --- |

1. Select item 4, Create Objects, from the Manager Document Definition Menu.

| --- Manager Document Definition Menu ---  1 Edit Document Definitions  2 Sort Document Definitions  3 Create Document Definitions  4 Create Objects  5 Create TIU/Health Summary Objects  You have PENDING ALERTS  Enter "VA to jump to VIEW ALERTS option  Select Document Definitions (Manager) <TEST ACCOUNT> Option: **4 Create Objects** |
| --- |

1. Press the <ENTER> key at the prompt, FIRST//.

| START DISPLAY WITH OBJECT: FIRST// .............................................  ................................................................................  .......................................................................  **Objects** Feb 24, 2015@15:12:05 Page: 1 of 16  Objects  Status  1 A1C HGB A  2 A1C LAST A  3 ABD CAT SCAN A  4 ABG A  5 ACTIVE MEDICATIONS A  6 ACTIVE MEDS COMBINED A  7 ACTIVE PROBLEM A  8 ACTIVE/PENDING/EXPIRED MEDICATIONS A  9 ACTIVE/PENDING/EXPIRED MEDS I  10 ACTIVE/PENDING/EXPIRING MEDICATIONS (W/O SUPPLIES) A  11 ADMISSIONS PAST YR A  12 ALBUMIN A  13 ALBUMIN TIU OBJECT A  14 ALLERGIES WITH DETAIL A  + ?Help >ScrollRight PS/PL PrintScrn/List +/- >>>  Find Detailed Display/Edit Copy/Move  Change View Try Quit  Create Owner  Select Action: Next Screen// |
| --- |

1. Enter CREATE at the Select Action prompt as shown below. Enter a new name for your PDO. To avoid confusion with national or application default PDOs, please do not begin the PDO name with VA, VPS, or CSQ. Delete the CLINICAL COORDINATOR as the CLASS OWNER, and enter your name as the PERSONAL OWNER of the PDO.

Select Action: Next Screen// **CREATE** Create

Enter the Name of a new Object*:****<Questionnaire PDO descriptive name>***

CLASS OWNER: CLINICAL COORDINATOR// **@**

PERSONAL OWNER:**<your name> <ENTER>**

Entry added

1. After the creating the new PDO object in step 2, the Object list is displayed, and the newly enter object name should appear in the list. Enter the Object number (number to the left of the name) at the Select Entry prompt.

| **Objects** Feb 24, 2015@15:23:57 Page: 2 of 16  Objects  + Status  24 ***Questionnaire PDO description name*** I  25 CBC A  26 CBC 2 A  Find Detailed Display/Edit Copy/Move  Change View Try Quit  Create Owner  Select Action: Next Screen// **D Detailed Display/Edit**  Select Entry: (24-37): **24** |
| --- |

1. The Detailed Display screen shows the basic information for the PDO object.

Enter Technical Fields at the Select Action prompt. As shown in the screen capture below. Replace the parameter placeholders *<QID>, <QNM>*, etc. in the following M code and enter the M code with applicable parameters at the OBJECT METHOD prompt.

| Technical Fields  Object Method:  + ? Help +, - Next, Previous Screen PS/PL  Basics Try Delete  Technical Fields Find Quit  Select Action: Next Screen// **TECHNICAL FIELDS** |
| --- |

**S X=$$GETRPT^VPSSRVY3(DFN,”^TMP(“”VPSPDO1””,$J)”,”<QID>”,”<QNM>”,<FRMDT>,<TODT>,<CSQOCCU>)**

| **Detailed Display** Feb 24, 2015@15:26:21 Page: 1 of 1  Object CAROLYN TEST    Basics  Name: ***Questionnaire PDO description name***  VHA Enterprise  Standard Title:  Abbreviation:  Print Name: ***Questionnaire PDO description name***  Type: OBJECT  IFN: 97  National  Standard: NO  Status: INACTIVE  Owner: ***your name***  Technical Fields  Object Method:  ? Help +, - Next, Previous Screen PS/PL  Basics Try Delete  Technical Fields Find Quit  Select Action: Quit// Select Action: Quit// **Technical Fields** Technical Fields  OBJECT METHOD: **S X=$$GETRPT^VPSSRVY3(DFN,”^TMP(“”VPSPDO1””,$J)”,”<QID>”,”<QNM>”,<FRMDT>,<TODT>,<CSQOCCU>)** |
| --- |

In the M code shown above, the following parameter are place holders and may be replaced with specific values or left empty:

QID The TEMPLATE ID of the desired Clinical Survey Questionnaire. This is the unique survey identifier (optional). To obtain the CSQ TEMPLATE ID do a FileMan inquiry to the VPS QUESTIONNAIRE IDENTIFIERS file #853.85. There must be quotation marks surrounding this value.

QNM The Clinical Survey Questionnaire name (optional) is the name in the VPS QUESTIONNAIRE NAME file #853.85 corresponding to a CSQ TEMPLATE ID. To obtain the CSQ name (QNM) do a FileMan inquiry to the VPS QUESTIONNAIRE NAME file #853.875. There must be quotation marks surrounding this value.

**NOTE: If both QID and QNM are omitted, all CSQs to which the patient has responded will be included in the PDO.**

**If both the QID (Questionnaire IEN) and QNM (Questionnaire Name) are provided, the QID must correspond or refer to the provided QNM. If the QID does not correspond or refer to the QNM then no CSQ survey data is returned.**

FRMDT The starting date for a date range (optional). If not provided all identified questionnaires are returned. The starting date must be entered in FileMan format, e.g. April 16,2015 in FileMan format is 3150416.

TODT The ending date for a date range (optional). If not provided all identified questionnaires are returned. The ending date must be entered in FileMan format, e.g. April 16, 2015 in FileMan format is 3150416.

CSQOCCU The number of questionnaire instances to be included in the PDO when a patient has responded to a questionnaire multiple times (optional). If not provided, all occurrences of the CSQ are returned.

Following are example OBJECT METHOD parameter settings.

1. The following OBJECT METHOD will retrieve the first three submissions of the CSQ with QID equal to 3 for a patient.

**S X=$$GETRPT^VPSSRVY3(DFN,"^TMP(""VPSPDO1"",$J)",”** **37eb0b5ea435b559e994222e2ad6bf83”,"HOLIDAY SAFETY CHECK",,,3)**

Or

**S X=$$GETRPT^VPSSRVY3(DFN,"^TMP(""VPSPDO1"",$J)", “37eb0b5ea435b559e994222e2ad6bf83”,,,,3)**

1. The following OBJECT METHOD will retrieve all versions of the CSQ named “BUG TEST” and all occurrences of those versions to which a patient responded. To restrict the CSQs retrieved to a specific questionnaire, include the QID.

**S X=$$GETRPT^VPSSRVY3(DFN,"^TMP(""VPSPDO1"",$J)",,"BUG TEST",,,3)**

1. The following OBJECT METHOD will retrieve all the CSQs for a date range. Note dates are entered in FileMan date format, “CYYMMDD”, where C is the century number.

**S X=$$GETRPT^VPSSRVY3(DFN,"^TMP(""VPSPDO1"",$J)",4,,3150224,3150227,3)**

You must activate the CSQ PDO object before you may include it in a TIU note. To activate the CSQ PDO, you press the <ENTER> Key to return to the Detailed Display screen, and enter **Basics** at the Select Action prompt.

| **Detailed Display** Feb 26, 2015@16:12:45 Page: 1 of 2  Object CAR2 SCRN CAP    Basics  Name: CAR2 SCRN CAP  VHA Enterprise  Standard Title:  Abbreviation:  Print Name: CAR2 SCRN CAP  Type: OBJECT  IFN: 97  National  Standard: NO  Status: INACTIVE  Owner: WHELESS,CAROLYN  Technical Fields  Object Method: S X=$$GETRPT^VPSSRVY3(DFN,"^TMP(""VPSPDO1"",$J)",2,"BUG  + ? Help +, - Next, Previous Screen PS/PL  Basics Try Delete  Technical Fields Find Quit  Select Action: Next Screen// B Basics  NAME: CAR2 SCRN CAP//  ABBREVIATION:  PRINT NAME: CAR2 SCRN CAP//  PERSONAL OWNER: WHELESS,CAROLYN// WHELESS,CAROLYN  STATUS: (A/I): INACTIVE// **ACTIVE** ACTIVE Entry Activated. |
| --- |

Press the <ENTER> key and enter **ACTIVE** in the STATUS field as shown. Quit the TIU Maintenance menu.

To use the created CSQ PDO object, launch CPRS and insert the CSQ PDO into a Notes template.

## VPS Appointment Status

VPS uses the HL Optimized (HLO), an optimized version of HL 1.6, to send HL7 admission, discharge and transfer (ADT) A01 messages containing updated patient appointment, miscellaneous demographic, enrollment, eligibility, patient record flag, and patient balance information. For details on the information included in the VPS ADT A01 message, please see section 2.5 of this document.

The HL7 messages are triggered by the appointment event driver [SDAM APPOINTMENT EVENTS]. When a patient appointment is created, checked-in, check-out, cancelled or the time values of these actions is modified, an SDAM event is triggered which invokes the VPS Appointment Status protocol. This protocol generates and sends an HL7 A01 message to VetLink.

### VPS VistA HL7 Messaging Configuration

VPS VistA Health Level Seven (HL7) Server Configuration is usually a one-time operation performed after installation of VPS\*1.0\*5. However, site support staff will require an understanding of the HL7 configuration to troubleshoot messaging errors or communication failures.

Site IRM and VPS system administrators supporting VPS HL7 messaging require the HLO security keys HLOMAIN and HLOMGR.

Prior to activating VPS Appointment Status Messaging, the VPS HL7 sending and receiving message applications must be entered into the HLO APPLICATION REGISTRY file #779.2. The VPS\*1.0\*5 Appointment Status entries in this file are VPS SEND APPT STATUS (the sending application) and VPS VECNA APPT STATUS (the receiving application). These entries are used to automatically populate the sending and receive application fields in the VPS HL7 ADT A01 Message Header (MSH) segment. Following are the registry entries for VPS\*1.0\*5 HL7 Appointment Status messaging:

APPLICATION NAME: **VPS SEND APPT STATUS**

Package File Link: **HEALTH LEVEL SEVEN**

APPLICATION NAME: **VPS VECNA APPT STATUS**

Package File Link: **HEALTH LEVEL SEVEN**

These entries should **NOT** be modified or changed. Modification of these entries may prevent transmission of VPS appointment status ADT A01 messages.

VPS\*1.0\*5 HL7 Appointment Status messages use an HL Logical Link to transmit messages. During installation of VPS\*1\*5, the HL Logical Link is configured by the IRM. A FileMan inquiry into the HL LOGICAL LINK file 870 may be used to display the VPS HL7 Appointment Status logical link, **VPSAPPT**. The VPSAPPT should appear as follows, with the DNS DOMAIN and TCP/IP Address replaced with the VPS Kiosks information provided in the VPS HL7 Configuration spreadsheet available at

<http://vaww.oed.portal.va.gov/projects/vps/Library/VetLink%205.5/VPS_HL7_Server_Information.xlsx>

NODE: VPSAPPT LLP TYPE: TCP

STATE: Shutdown AUTOSTART: Enabled

DNS DOMAIN: XX.XXX.XXX.XXX TIME STOPPED: FEB 23, 2015@13:47:15

SHUTDOWN LLP ?: YES QUEUE SIZE: 10

TCP/IP ADDRESS: XX.XXX.XXX.XXX TCP/IP SERVICE TYPE: CLIENT (SENDER)

TCP/IP PORT (OPTIMIZED): 5001

The DNS DOMAIN field should be populated with the DNS Domain or IP address of the VetLink HL7 server provided for your site. The TCP/IP PORT field is populated with the default VistA client outbound HLO port number.

If modifications or changes are required to the VPSAPPT entry in the HL LOGICAL LINK file #870, use the VistA LINK EDIT option to make the changes.

| Select OPTION NAME: **LINK EDIT** HL EDIT LOGICAL LINKS Link Edit  Select HL LOGICAL LINK NODE: **VPSAPPT** |
| --- |

Use the <TAB> or arrow key to navigate to the logical link fields and enter or modify values for your site’s HL LOGICAL LINK configuration.

| HL7 LOGICAL LINK  ----------------------------------------------------------------------------  NODE: **VPSAPPT** DESCRIPTION:  INSTITUTION:  MAILMAN DOMAIN:  AUTOSTART: **Enabled**  QUEUE SIZE: **10**  LLP TYPE: **TCP**  DNS DOMAIN: ***<domain-name or ip address of VetLink HL7 server>***  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  COMMAND: Press <PF1>H for help Insert |
| --- |

The LLP TYPE (Lower Level Parameters) sub-fields are accessed by tabbing or using the arrow keys to move to the LLP TYPE field. When the LLP TYPE field is selected, press the <ENTER> key to display the TCP LOWER LEVEL PARAMETERS screen.

| HL7 LOGICAL LINK  -----------------------------------------------------------------------------  TCP LOWER LEVEL PARAMETERS   **VPSAPPT**        TCP/IP SERVICE TYPE: CLIENT (SENDER)    TCP/IP ADDRESS: **10.XXX.XXX.XXX**     TCP/IP PORT:    TCP/IP PORT (OPTIMIZED): **5001**        ACK TIMEOUT: RE-TRANSMISION ATTEMPTS:    READ TIMEOUT: EXCEED RE-TRANSMIT ACTION:    BLOCK SIZE: SAY HELO:    TCP/IP OPENFAIL TIMEOUT:   STARTUP NODE: PERSISTENT:    RETENTION: UNI-DIRECTIONAL WAIT:     COMMAND: Press <PF1>H for help Insert |
| --- |

In the TCP/IP ADDRESS field, enter the IP address of the receiving HL7 Server. This IP Address will be used for HL7 message transmission if the DNS name is not in the DNS server or the DNS server is not available. In the TCP/IP PORT is the default VistA HLO default port number. (Note: Port number assignments may be in the range 1000 to 32000. Presently, VPS Kiosks is using the default HLO outbound port, but may establish a different port assignment in the future.) The DNS DOMAIN, TCP/IP ADDRESS and TCP/IP PORT values are provided the VPS HL7 Configuration spreadsheet (link provided above).

To save changes/modifications, tab to the COMMAND field and press <ENTER> to close the TCP LOWER LEVEL PARAMETERS dialog.

| HL7 LOGICAL LINK  -----------------------------------------------------------------------------  TCP LOWER LEVEL PARAMETERS   **VPSAPPT**        TCP/IP SERVICE TYPE: **CLIENT (SENDER)**    TCP/IP ADDRESS: **XX.XXX.XXX.XXX**     TCP/IP PORT:     TCP/IP PORT (OPTIMIZED): **5001**        ACK TIMEOUT:  RE-TRANSMISION ATTEMPTS:     READ TIMEOUT:  EXCEED RE-TRANSMIT ACTION:    BLOCK SIZE:  SAY HELO:     TCP/IP OPENFAIL TIMEOUT:    STARTUP NODE:  PERSISTENT:     RETENTION:  UNI-DIRECTIONAL WAIT:      \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Close Refresh    Enter a command or '^' followed by a caption to jump to a specific field.  COMMAND: Close Press <PF1>H for help Insert |
| --- |

When you have entered the required configuration values, use the tab key to navigate to the COMMAND field and enter ***Save*** andpress the <ENTER> key. Exit the link edit screen by navigating to the COMMAND field and enter ***Exit*** and press the <ENTER> key.

| HL7 LOGICAL LINK  -----------------------------------------------------------------------------  NODE: **VPSAPPT**  DESCRIPTION:  INSTITUTION:  MAILMAN DOMAIN:  AUTOSTART: **Enabled**  QUEUE SIZE: **10**  LLP TYPE: **TCP**  DNS DOMAIN: ***<domain-name or ip address of VetLink HL7 server>***  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Exit Save Refresh    Enter a command or '^' followed by a caption to jump to a specific field.  COMMAND: Save Press <PF1>H for help Insert |
| --- |

The above operations will be performed during the VPS\*1.0\*5 post-install and HL Logical Link connectivity will be verified. The above instructions and screen captures are provided for information and assistance should changes to the VPSAPPT HL Logical Link become necessary in the future.

### Monitoring and Troubleshooting VPS HL7 Messaging

The HL7 MAIN MENU, HLO option is used to monitor and research issues with VPS HL7 ADT A01 Appointment Status messages, as shown in the following screen capture.

| Select OPTION NAME: **HL7 MAIN MENU** HL MAIN MENU HL7 Main Menu  Event monitoring menu ...  Systems Link Monitor  Filer and Link Management Options ...  Message Management Options ...  Interface Developer Options ...  Site Parameter Edit  HLO HL7 (Optimized) MAIN MENU ...  Select HL7 Main Menu Option: **HLO** HL7 (Optimized) MAIN MENU  SM HLO SYSTEM MONITOR  MV HLO MESSAGE VIEWER  STAT HLO MESSAGE STATISTICS  ES HLO ERROR STATISTICS  SE HLO EDIT ERROR SCREENS  TS TROUBLESHOOTING MENU ...  DM HLO DEVELOPER MENU ...  SP EDIT HLO SYSTEM PARAMETERS  Select HL7 (Optimized) MAIN MENU Option: **SM**  **HLO SYSTEM MONITOR** Feb 23, 2015@14:15 Page: 1 of 1  Brief Operational Overview  **SYSTEM STATUS: RUNNING**  **PROCESS MANAGER: RUNNING**  **STANDARD LISTENER: RUNNING**  **TASKMAN: RUNNING**  DOWN LINKS:  CLIENT LINK PROCESSES: 2  IN-FILER PROCESSES: 2  **MESSAGES PENDING ON OUT QUEUES: 0** ON SEQUENCE QUEUES: 0  STOPPED OUTGOING QUEUES:  MESSAGES PENDING ON APPLICATIONS: 0  STOPPED INCOMING QUEUES: VPS  FILE 777 RECORD COUNT: 0 --> as of Feb 22, 2015@16:41:57  FILE 778 RECORD COUNT: 0 --> as of Feb 22, 2015@16:41:57  MESSAGES SENT TODAY: 5  MESSAGES RECEIVED TODAY: 0  MESSAGE ERRORS TODAY: 0  Brief System Status >>>  LP LIST PROCESSES BS BRIEF STATUS TL TEST TCP LINK  DL DOWN LINKS ML MONITOR LINK RT RealTime MODE  OQ OUTGOING QUEUES STOP HLO SEQ SEQUENCE QUEUES  IQ INCOMING QUEUES START HLO SQ START/STOP QUEUE  Select Action:Quit// |
| --- |

At the start of each business day, the VPS system support staff should verify that the HLO System is running correctly. In the HLO SYSTEM MONITOR display, the SYSTEM STATUS, PROCESS MANAGER, STANDARD LISTENER, and TASKMAN should be in the RUNNING STATE. If any of these processes show as STOPPED, please notify you IRM to restart the process.

The number of messages that are pending transmission as shown by the MESSAGES PENDING ON OUT QUEUES should not be an excessively large and growing number.

If the pending message count is increasing and/or messages do not appear to be transmitting, restarting the HL LOGICAL LINK may resume message processing. To restart the VPSAPPT HL Logical Link, enter **DL** at the Select Action prompt. Note: This action is also used to re-start links that have been SHUTDOWN deliberately after configuration changes or other network changes.

| LP LIST PROCESSES BS BRIEF STATUS TL TEST TCP LINK  DL DOWN LINKS ML MONITOR LINK RT RealTime MODE  OQ OUTGOING QUEUES STOP HLO SEQ SEQUENCE QUEUES  IQ INCOMING QUEUES START HLO SQ START/STOP QUEUE  Select Action:Quit// **DL** |
| --- |

Enter RL at the Select Action prompt on the Down HLO Links screen and enter the name of the link to be re-started, VPSAPPT.

| **Down HLO Links** Feb 24, 2015@17:58:23 Page: 0 of 0  Pending Messages Date/Time Down  Down Client Links  SL SHUTDOWN LINK RL RESTART LINK  Select Action:Quit// **RL** RESTART LINK  Select a TCP Client Link (Outgoing):**VPSAPPT** |
| --- |

Return to the HLO SYSTEM MONITOR by pressing the <ENTER> key. If the pending count continues to increase, check the outgoing HL queues.

To check the outgoing queues, enter OQ at the Select Action prompt.

| LP LIST PROCESSES BS BRIEF STATUS TL TEST TCP LINK  DL DOWN LINKS ML MONITOR LINK RT RealTime MODE  OQ OUTGOING QUEUES STOP HLO SEQ SEQUENCE QUEUES  IQ INCOMING QUEUES START HLO SQ START/STOP QUEUE  Select Action:Quit// **OQ** |
| --- |

VPS HL7 HLO Outbound message queues are created automatically when a Scheduling appointment change triggers the SDAM event driver. The name of the outbound message queue created is the concatenation of the $J process identifier and ***VPSSEND****.*  The HLO SYSTEM MONITOR is used to view created VPSSEND outbound message queues. The HLO Outbound Queue display shows the outbound message queue name. An asterisk next to the queue name indicates a stopped queue which should be restarted.

| **HLO Outbound Queues** Feb 24, 2015@18:06:49 Page: 1 of 0  Link Queue/Priority Count Top Message  VPSSEND28650 DEFAULT 33 442 1461930  **\*VPSSEND28651** DEFAULT 1069 442 740657  Outgoing Queues \*down links !stopped queues  DQ DELETE QUEUE DT DEL TOP MSG  DM DISPLAY MESSAGE RT Real Time Display  Select Action:Quit// |
| --- |

If messages appear to be stuck in an outbound queue, you may select the **DT** option to delete the top message. This action may or may not cause subsequent messages in the queue to be processed.

To re-start a stopped queue, return to the HLO SYSTEM MONITOR screen (from the HLO Outbound Queue screen just press the <ENTER> key) and enter SQ at the Select Action prompt.

| LP LIST PROCESSES BS BRIEF STATUS TL TEST TCP LINK  DL DOWN LINKS ML MONITOR LINK RT RealTime MODE  OQ OUTGOING QUEUES STOP HLO SEQ SEQUENCE QUEUES  IQ INCOMING QUEUES START HLO SQ START/STOP QUEUE  Select Action:Quit// **SQ** |
| --- |

Select item 1, START, select O OUTGOING, and enter the name of the stopped queue shown on the HLO Outbound Queue display (see above).

| Select Action:Quit// SQ START/STOP QUEUE  Select one of the following:  1 START  2 STOP  Do you want to START or STOP a queue: 1// **START**  Select one of the following:  I INCOMING  O OUTGOING  Do you want to start an incoming queue or an outgoing queue: I// **OUTGOING**  Enter the full, exact name of queue: ***VPSSEND28651***  Queue name VPSSEND28651 taken from example on page 25. |
| --- |

If messages continue to not be sent after restarting the VPSAPPT HL LOGICAL LINK and the HLO OUTGOING QUEUES, please take the following steps.

1. Using VistA FileMan, edit the **VPS HL7 SITE PARAMETER file #853.1** and set the **ACTIVE** field to **NO.** This will stop the creation of new HL7 messages**.**
2. Log a Remedy Ticket with the National Service Desk for assistance.

Temporary network issues or other site resource limitations may require that VPS Appointment Status messaging be suspended. To stop VPS Appointment Status messaging:

1. Using VistA FileMan, edit the **VPS HL7 SITE PARAMETER** file **#853.1** and set the **ACTIVE** field to **NO.** This will stop the creation of new HL7 messages**.**
2. Allow the VPSAPPT HL Logical Link to remain operational. Messages pending transmission on the VPS message queues will be sent. When all the pending messages have been successfully transmitted the VPS message queues will be empty. At this time the VPSAPPT HL Logical Link may be shutdown, if necessary.

When the network or resource limitations have been restored to normal, perform the following steps to restart VPS Appointment Status messaging:

1. Use the HLO System Monitor **DL** option to re-start the VPSAPPT HL Logical Link.
2. Use the HLO System Monitor **TL** option to test the VPS HL Logical Link. The TL option should display **VPSAPPT:5001 IS operational** (Note the site HLO port number may differ from 5001). If the TL option displays **VPSAPPT:5001 IS NOT operational**, please log a ticket with the National Service Desk for assistance.
3. After the HLO System Monitor **TL** option displays the **VPSAPPT:5001 IS operational** message, use FileMan to edit the **VPS HL7 SITE PARAMETER** file **#853.1** and set the **ACTIVE** field to **YES. Note: Do not activate VPS APPOINTMENT STATUS message creation if the VPS HL Logical Link is not operational.**

If messages in the VPS message queues are being transmitted, but the number of messages in the VPS message queues is increasing, the receiving HL7 server may be down or have an issue. Please take the following steps.

1. Please contact [**qckiosksupport@vecna.com**](mailto:qckiosksupport@vecna.com) and **include your site name and the information in the HL LOGICAL LINK file**.  If necessary, escalate to [**VPS@VA.GOV**](mailto:VPS@VA.GOV)**.**

If immediate assistance is not available, it is recommended that VPS Messaging be stopped until the transmission problem is identified and corrected. To stop VPS Appointment Status messaging please perform the following steps in sequence.

1. Using VistA FileMan, edit the **VPS HL7 SITE PARAMETER** file **#853.1** and set the **ACTIVE** field to **NO.** This will stop the creation of new HL7 messages**.**
2. Using the HLO System Monitor **DL** option, shutdown the VPSAPPT HL Logical Link.

Additional information on the options and troubleshooting actions is available in the *Health Level Seven Optimized (HLO) System Manage Manual* version 1.1, which is available in the Infrastructure section of the [VistA Documentation Library (VDL)](http://www.va.gov/vdl/).

## VPS HL7 A01 Message Profile

### MSH - Message Header Segment

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1 | ST | R |  |  | Field Separator | Recommended value is **|** (bar) |
| 2 | 4 | ST | R |  |  | Encoding Characters | Recommended delimiter values:  Component = **^**(caret)  Repeat = **~** (tilde)  Escape = **\** (back slash)  Sub-component = & (ampersand) |
| 3 | 15 | ST |  |  |  | Sending Application | Name field of HL7 Application Parameter file. |
| 4 | 20 | ST |  |  |  | Sending Facility | Sending station's facility number from Institution field of HL7 Communication Parameters file. |
| 5 | 30 | ST |  |  |  | Receiving Application | Name field of HL7 Application Parameter file. |
| 6 | 30 | ST |  |  |  | Receiving Facility | Receiving station’s facility number from Institution field of HL Logical Link file. |
| 7 | 26 | TS |  |  |  | Date/Time Of Message | Date and time message was created. |
| 8 | 40 | ST |  |  |  | Security | Not used |
| 9 | 7 | CM | R |  | 0076  0003 | Message Type | Always set to ADT^A01 |
| 10 | 20 | ST | R |  |  | Message Control ID | Automatically generated by VISTA HL7 Package. |
| 11 | 1 | ID | R |  | 0103 | Processing ID | P (production) |
| 12 | 8 | ID | R |  | 0104 | Version ID | Version ID field of event protocol in Protocol file**.** |
| 13 | 15 | NM |  |  |  | Sequence Number | Not used |
| 14 | 180 | ST |  |  |  | Continuation Pointer | Not used |
| 15 | 2 | ID |  |  | 0155 | Accept Acknowledgment Type | NE (never acknowledge) |
| 16 | 2 | ID |  |  | 0155 | Application Acknowledgment Type | AL (always acknowledge) |

### EVN – Event Type

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Value** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 3 | ID | B |  | 0003 | Event Type Code | Not Used |
| 2 | 26 | TS | R |  |  | Recorded Date/Time | Appointment Date (FileMan format) |
| 3 | 26 | TS | O |  |  | Date/Time Planned Event | Appointment Date (HL7 format) |
| 4 | 3 | IS | O |  | 0062 | Event Reason Code | Codes 04-18 representing the APPOINTMENT STATUS file IEN and string value e.g. 1 CHECKED IN |
| 5 | 370  40  330  5  40  5  40  160 | XCN  ST  TS  TS  TS | RE  R  R  R  RE |  | 0188 | Operator ID  ID number  Family name  Surname  Own surname prefix  Own surname  Surname prefix from partner/spouse  Surname from partner /spouse | Appointment Print Status (Display Status)  Clinic IEN  Clinic Name (file #44)  Appointment Type IEN  Appointment Type Name (file #409.1)  Cancellation Remarks |

### PID - Patient Identification Segment

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI |  |  |  | Set ID - Patient ID | Always set to ‘1’ |
| 2 | 20  20  5 | CK  ST  ST |  |  |  | Patient ID  ID  Check digit  Code identifying the check digit  Assigning authority  Namespace ID | Patient DFN  Station Number  Not Used  Assigning authority code e.g. “USVHA” |
| 3 | 20 | CM | R | Y |  | Patient Identifier List | Not used |
| 4 | 12  15 | CX  ST |  |  |  | Alternate Patient ID  ID | Sensitive Patient Flag\_  e.g. 0\_NON-SENSITIVE |
| 5 | 48 | PN | R |  |  | Patient Name | Patient Name |
| 6 | 30 | ST |  |  |  | Mother's Maiden Name | Not Used |
| 7 | 26 | TS |  |  |  | Date of Birth | Not Used |
| 8 | 1 | ID |  |  | 0001 | Sex | Not Used |
| 9 | 48 | PN |  | Y |  | Patient Alias | Not used |
| 10 | 1 | ID |  |  | 0005 | Race | Not used |
| 11 | 106  50 | AD  ST | R  R | Y |  | Patient Address  Street address  Other designation | Not Used  Bad Address ID\_Bad Address Reason. |
| 12 | 4 | ID |  |  |  | County Code | Not used |
| 13 | 40  50 | XTN  ST |  | Y |  | Phone Number – Home  Text=Not Used  Telecommunication use code  Telecommunication equipment type  Email address  Country code=Not Used  Area/city code=Not Used  Phone number=Not Used  Extension=Not Used  Text=not used | Components:  Not Used  Not Used  Not Used  Patient email address |
| 14 | 40 | TN |  | Y |  | Phone Number – Business | Not used |
| 15 | 25 | ST |  |  |  | Language – Patient | Not used |
| 16 | 1 | ID |  |  | 0002 | Marital Status | Not used |
| 17 | 3 | ID |  |  | 0006 | Religion | Not used |
| 18 | 20 | CK |  |  |  | Patient Account Number | Not used |
| 19 | 16 | ST |  |  |  | SSN Number – Patient | Social security number and pseudo indicator. |

### PV1 - Patient Visit

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI |  |  |  | Set ID - Patient ID | Sequential number beginning with 1, for each Patient Record Flag assigned to a patient. |
| 2 | 1 | IS | R |  | 0004 | Patient Class | Always set to Unknown |
| 3 | 80 | PL | O |  |  | Assigned Patient Location | Not Used |
| 4 | 2 | IS | O |  | 0007 | Admission Type | Not Used |
| 5 | 300  8  20  3  20  250 | CX  ST  ST  ID  ST  ST | RE  RE  RE  RE  RE | Y |  | Preadmit Number  ID  Check digit  Code identifying check digit  Assigning authority  Namespace  Universal ID | Patient Record Flags  Flag origin (National|Local)  Flag Type (e.g. Behavioral)  Not Used  Flag Name (e.g.Behavioral)  Not Used |
| 6 | 80 | PL | O |  |  | Prior Patient Location | Not Used |
| 7 | 250 | XCN | O |  |  | Attending Doctor | Not Used |
| 8 | 250 | XCN | O |  |  | Referring Doctor | Not Used |
| 9 | 250 | XCN | O |  |  | Consulting Doctor | Not Used |
| 10 | 3 | IS | O |  |  | Hospital Service | Not Used |
| 11 | 80 | PL | O |  |  | Temporary Location | Not Used |
| 12 | 2 | IS | O |  |  | Preadmit Test Indicator | Not Used |
| 13 | 2 | IS | O |  |  | Re-admission Indicator | Not Used |
| 14 | 6 | IS | O |  |  | Admit Source | Not Used |
| 15 | 2 | IS | O |  |  | Ambulatory Status | Not Used |
| 16 | 2 | IS | O |  |  | VIP Indicator | Not Used |
| 17 | 250 | XCN | O |  |  | Admitting Doctor | Not Used |
| 18 | 2 | IS | O |  |  | Patient Type | Not Used |
| 19 | 250 | CX | O |  |  | Visit Number | Not Used |
| 20 | 50 | FC | O |  |  | Financial Class | Not Used |
| 21 | 2 | IS | O |  |  | Charge Price Indicator | Not Used |
| 22 | 2 | IS | O |  |  | Courtesy Code | Not Used |
| 23 | 2 | IS | O |  |  | Credit Rating | Not Used |
| 24 | 2 | IS | O |  |  | Contract Code | Not Used |
| 25 | 8 | DT | O |  |  | Contract Effective Date | Not Used |
| 26 | 12 | NM | O |  |  | Contract Amount | Patient balance-owed |

### IN1 – Insurance Information

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI | R |  |  | SET ID | SEQUENTIAL NUMBER (1 is always primary eligibility) |
| 2 | 250  1 | CE  ST | R  RE |  |  | Insurance Plan  Identifier | Patient Insured (Y|N) |

### ZEN – VA Enrollment Segment

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | ~~4~~ | SI | R |  |  | SET ID –ZEN | Always set to 1 |
| 2 | 8 | DT | RE |  |  | ENROLLMENT DATE | Not Used |
| 3 | 1 | ID | R |  | VA024 | SOURCE OF ENROLLMENT | Not Used |
| 4 | 2 | IS | R |  | VA015 | ENROLLMENT STATUS | Enrollment Status Code |
| 5 | 3 | IS | RE |  | VA016 | REASON CANCELED/DECLINED | Not Used |
| 6 | 30 | TX | RE |  |  | CANCELED/DECLINED REMARKS | Not Used |
| 7 | 3 | IS | RE |  | VA115 | FACILITY RECEIVED | Not Used |
| 8 | 10 | IS | RE |  | VA115 | PREFERRED FACILITY | Not Used |
| 9 | 1 | IS | RE |  | VA021 | ENROLLMENT PRIORITY | Not Used |
| 10 | 8 | DT | R |  |  | EFFECTIVE DATE | Pre-Registration Date Changed (FileMan format) |
| 11 | 8 | DT | R |  |  | ENROLLMENT APPLICATION DATE | Pre-Registration Date Change (HL7 Format) |

### ZEL – VA Patient Eligibility Segment

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI | R |  |  | SET ID | SEQUENTIAL NUMBER (1 is always primary eligibility) |
| 2 | 2 | IS |  |  | VA004 | ELIGIBILITY CODE | Eligibility Code |
| 3 | 16 | CK |  |  |  | LONG ID | Not Used |
| 4 | 12 | ST |  |  |  | SHORT ID | Eligibility Status  e.g. VERIFIED |
| 5 | 1 | IS |  |  | 0136 | DISABILITY RETIREMENT FROM MIL | Not Used |
| 6 | 9 | NM |  |  |  | CLAIM FOLDER NUMBER | Not Used |
| 7 | 40 | ST |  |  |  | CLAIM FOLDER LOCATION | Not Used |
| 8 | 1 | IS |  |  | VA001 | VETERAN? | Not Used |
| 9 | 30 | ST |  |  |  | TYPE OF PATIENT | Not Used |
| 10 | 1 | IS |  |  | VA006 | ELIGIBLITY STATUS | Not Used |
| 11 | 8 | DT |  |  |  | ELIGIBILITY STATUS DATE | Ineligible Date (FileMan Format) |
| 12 | 8 | DT |  |  |  | ELIGIBLILITY INTERIM RESPONSE | Ineligible Date (HL7 Format) |

### ZMT – VA Means Test

| **SEQ** | **LEN** | **DT** | **R/O** | **RP/#** | **TBL#** | **ELEMENT NAME** | **SEQ Values** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 4 | SI | R |  |  | SET ID | SEQUENTIAL NUMBER (1 is always primary eligibility) |
| 2 | 8 | DT | R |  |  | Means Test Date | Not Used |
| 3 | 2 | IS | R |  | VA002 | Means Test Status | Means Test Status Code |

### HL7 Tables

#### Table VA002: Current Means Test Status

| **Value** | **Description** | |
| --- | --- | --- |
| 0 | Exempt (LTC C0-Pay Exempt Test) |
| 1 | Non- Exempt (LTC C0-Pay Exempt Test) |
| A | MT COPAY EXEMPT |
| B | CATEGORY B |
| C | MT COPAY REQUIRED |
| E | EXEMPT |
| G | GMT COPAY REQUIRED |
| I | INCOMPLETE |
| L | NO LONGER APPLICABLE |
| M | NON-EXEMPT |
| N | NO LONGER REQUIRED |
| P | PENDING ADJUDICATION |
| R | REQUIRED |

#### Table VA004: Eligibility

| **Value** | **Description** |
| --- | --- |
| 1 | SERVICE CONNECTED 50% to 100% |
| 2 | AID & ATTENDANCE |
| 3 | SC LESS THAN 50% |
| 4 | NSC - VA PENSION |
| 5 | NSC |
| 6 | OTHER FEDERAL AGENCY |
| 7 | ALLIED VETERAN |
| 8 | HUMANITARIAN EMERGENCY |
| 9 | SHARING AGREEMENT |
| 10 | REIMBURSABLE INSURANCE |
| 12 | CHAMPVA |
| 13 | COLLATERAL OF VET. |
| 14 | EMPLOYEE |
| 15 | HOUSEBOUND |
| 16 | MEXICAN BORDER WAR |
| 17 | WORLD WAR I |
| 18 | PRISONER OF WAR |
| 19 | TRICARE/CHAMPUS |
| 21 | CATASTROPHIC DISABILITY |
| 22 | PURPLE HEART RECIPIENT |
| 23 | REFUSED MT CO-PAY |

#### Table VA015: Enrollment Status

|  |  |  |
| --- | --- | --- |
| **Value** | **Description** | |
| 1 | UNVERIFIED |
| 2 | VERIFIED |
| 3 | INACTIVE |
| 4 | REJECTED |
| 5 | SUSPENDED |
| 6 | TERMINATED |
| 7 | CANCELED/DECLINED |
| 8 | EXPIRED |
| 9 | PENDING |
| 10 | NOT ELIGIBLE |
| 11 | REJECTED; FISCAL YEAR |
| 12 | REJECTED; MID-CYCLE |
| 13 | REJECTED; STOP NEW ENROLLMENTS |
| 14 | REJECTED; INITIAL APPLICATION BY VAMC |
| 15 | PENDING; NO ELIGIBILITY CODE |
| 16 | PENDING; MEANS TEST REQUIRED |
| 17 | PENDING; ELIGIBILITY STATUS IS UNVERIFIED |
| 18 | PENDING; OTHER |
| 19 | NOT ELIGIBLE; REFUSED TO PAY COPAY |
| 20 | NOT ELIGIBLE; INELIGIBLE DATE |
| 21 | PENDING; PURPLE HEART UNCONFIRMED |
| 22 | REJECTED; BELOW ENROLLMENT GROUP THRESHOLD |

#### Table 062 – Event Type

|  |  |  |
| --- | --- | --- |
| **Value** | **Description** | |
| 01 | Patient request |
| 02 | Physician order |
| 03 | Census management |
| 04 | 1 CHECKED IN |
| 05 | 2 CHECKED OUT |
| 06 | 3 NO ACTION TAKEN |
| 07 | 4 NO SHOW |
| 08 | 5 CANCELLED BY CLINIC |
| 09 | 6 NO SHOW & AUTO RE-BOOK |
| 10 | 7 CANCELLED BY CLINIC & AUTO RE-BOOK |
| 11 | 8 INPATIENT APPOINTMENT |
| 12 | 9 CANCELLED BY PATIENT |
| 13 | 10 CANCELLED BY PATIENT & AUTO RE-BOOK |
| 14 | 11 FUTURE |
| 15 | 12 NON-COUNT |
| 16 | 13 DELETED |
| 17 | 14 ACTION REQUIRED |

## VPS AVS J2EE

VPS AVS is a web application that was developed using Java SE JDK (Java Standard Edition Java Development Kit) and Java EE 7 (Java Enterprise Edition 7). The VPS AVS presentation services are provided by an Apache Hyper Text Protocol (HTTP) server.

The *VPS AVS Installation Manual* provides detailed information regarding the installation of the VPS AVS J2EE application and the individual application components. A separate document, *VPS AVS Installation Guide KIDS*, provides detailed information regarding the installation of the required VPS\*1.0\*15 VistA patch.

### VPS AVS Administrator

Access to VPS AVS Administrator functions is controlled by the Authorization/Subscription package. Each site installing VPS AVS and VPS\*1.0\*15 will have an AVS ADMINISTRATOR user class. **This user class is a local facility user class and is not to be a sub-class of any other user class.** Members of the AVS ADMINISTRATOR user class have the ability to customize site-wide AVS settings. No other user class authorization should be provided through the AVS ADMINISTRATOR class. The VPS AVS Administrator user class is established by the site’s IRM or CAC during VPS\*1.0\*15 installation.

For detailed information on the use of the Authorization/Subscription package, please see CPRS: Authorization Subscription Utility (ASU) in the VistA Document Library.

#### Adding Users to AVS Administrator User Class

The following steps describe the process of adding a user to the AVS ADMINISTRATOR user class.

1. Select the USER CLASS MANAGEMENT MENU option.
2. Select item 3, List Membership by Class and enter **AVS ADMINISTRATOR** at the “Select CLASS:” prompt.

Select User Class Management <TEST ACCOUNT> **Option: 3 List Membership by Class**

Select CLASS: **AVS ADMINISTRATOR**

Searching for the User Classes.

**User Class Members** May 11, 2015@10:04:14 Page: 1 of 1

AVS ADMINISTRATORs 1 Member

Member Effective Expires

1 TESTUSER,AVSADMIN 03/21/15

+ Next Screen - Prev Screen ?? More Actions >>>

Add Remove Change View

Edit Schedule Changes Quit

Select Action: Quit//

1. Enter Add at the Select Action prompt

| Select Action: Quit// **A Add**  Select MEMBER: **TESTUSERTWO,ADMIN** AT 192 SYSTEMS ANALYST  MEMBER: TESTUSERTWO,ADMIN// <ENTER>  Enter the AVS user name at the Select MEMBER prompt.  Enter NOW or the current date at the EFFECTIVE DATE prompt.  EFFECTIVE DATE: **NOW (MAY 11, 2015)**  EXPIRATION DATE:<ENTER> |
| --- |

#### Removing AVS Users from the AVS ADMINISTRATOR User Class

To remove an AVS User from the AVS ADMINISTRATOR user class, use the USER CLASS MANAGEMENT MENU option.

1. Select item 3, List Membership by Class

| Select User Class Management <TEST ACCOUNT> **Option: 3 List Membership by Class**  Select CLASS: **AVS ADMINISTRATOR**  Searching for the User Classes.  **User Class Members** May 11, 2015@10:04:14 Page: 1 of 1  AVS ADMINISTRATORs 1 Member  Member Effective Expires  1 TESTUSER,AVSADMIN 03/21/15  + Next Screen - Prev Screen ?? More Actions >>>  Add Remove Change View  Edit Schedule Changes Quit  Select Action: Quit// |
| --- |

Enter Remove at the Select Action prompt

| Select Action: Quit// **R Remove**  Select Member(s): (1-2): **1**  Removing TESTUSER,AVSADMIN from AVS ADMINISTRATOR  Are you SURE? NO// **YES**  Rebuilding the list. |
| --- |

### VPS AVS VistA Connector

VPS AVS connects to a VistA database using theVistA connector proxy user – CONNECTOR, AVS. The CONNECTOR, AVS connector proxy is created during VPS AVS installation. Please refer to the VPS\*1.0\*15 installation guide for the steps to create CONNECTOR, AVS.

### VPS AVS Configuration and Properties

Correct operation and integration of VPS AVS J2EE application is controlled by configuration and properties, and XML files. In the following section, the directory paths specified are relative to the $JBOSS\_HOME environment variable. The default value of $JBOSS\_HOME is

***/usr/jboss1/jboss-6.1.0.Final***

#### VPS AVS VistA Connection

Connection parameters to VistA databases are located in the JBoss server’s directory /server/<server subdirectory>/conf where <server subdirectory> is replaced with all or default, or node1. The configuration file defining the VistA connection parameters is gov.va.med.vistalink.connectorConfig.xml.

This file includes an entry for each production VistA database instance and is entries are configured during VPS AVS installation.

In the event that site parameters, such the Vistalink port assignment, Internet Protocol (IP) or Fully Qualified Domain Name (FQDN), etc. change, it may be necessary to modify the site specific VPS AVS connection data. To modify the VPS AVS connection for a specific site, perform the following steps:

1. Open gov.va.med.vistalink.connectorConfig.xml in a text editor such as notepad.exe.
2. Locate the <connector> </connector> tags enclosing the connection information for the site.
3. Enter the values for the following:

verify-code=”<enter the encrypted verify code for CONNECTOR, AVS>”

access-code=”<enter the encrypted access code for CONNECTOR, AVS>”

port=”<site’s Vistalink port>”

ip=”<site’s IP address or FQDN>

primaryStation=<VistA site number>

jndiName=<VistA institution name>

1. Save your changes.
2. Reboot the VPS AVS application server.

All values entered between the <connector> tags must be enclosed in quotes as shown in the following example entry. The strings, “dddd” and “dd.d.ddd.ddd” should be replaced with the VistALink port and IP address configured for the facility VistA instance.

<connector always-use-default-as-min="**false**" enabled="**true**" encrypted="**true**" verify-code="**klRi48SeUSvIKxR+5lCecg==**" access-code="**k9w+YLXdi4fZSKVBKQEnkw==**" port="**dddd**" ip="**dd.d.ddd.ddd**" primaryStation="**442**" jndiName="**SITENAME**"> </connector>

If the VPS AVS proxy user access/verify codes change, the new values will need to be entered into the <connector> configuration. To encrypt the new access/verify codes, use the AVSCrypt.jar contained in vps\_avs\_utils.zip available in the ANONYMOUS.PUB directory on the VA FTP site. Perform the following steps to encrypt a clear text string.

1. Open a command window or terminal prompt.
2. At the command prompt type **java –jar AVSCrypt.jar** and press <ENTER>
3. At the “***Enter clear text:*”**, prompt type <Clear text to be encrypted> and press <ENTER>

The jar file will return the encryption and decrypted clear text as shown is the following example execution.

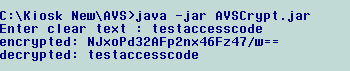


Figure : AVSCrypt.jar Example Execution

Note rebooting the VPS AVS application server should be done during the maintenance window. If a reboot outside the maintenance will is required, all users of the application server must be notified and VA production outage process should be followed.

#### VPS AVS avs.properties

VPS AVS imaging functionality uses the VistA imaging server and Imaging Background Processor (BP). VPS AVS stores patient AVS PDF files to the site’s local VistA imaging server using the BP import and export capabilities. During installation of VPS AVS, the default VPS AVS shared network location is configured in the avs.properties file and is stored in the ***/server/all/conf*** folder. A copy of this file is also copied to the conf directory of each VPS AVS JBoss instance, /server/all/conf/, /server/node1/conf, and /server/node2/conf.

Default values are configured for all avs.properties parameters. These properties should not be modified.

#### VPS AVS FusionCharts\_export.properties

Vitals chart information is generated by Fusion Charts. Fusion Charts stores each chart selected for display in a folder accessible to the VPS AVS HTTPD servers. The FusionCharts export location is specified in the ***fusioncharts\_export.properties*** file in the the folder ***/server/all/conf*** folder. This file is also copied to the conf directory of each VPS AVS JBoss instance, /server/all/conf/, /server/node1/conf, and /server node2/conf.

Default values are configured for all VPS AVS FusionChart properties. These properties should not be modified. **Changes to the FusionCharts\_export.properties will require, the Samba application to be reconfigured.**

#### VPS AVS Samba configuration

Samba is an open source third party applications that integrates Linux/Unix servers and Windows Servers into Active Directory environments. This product enables Linux servers to access, read from, or stored to Windows file servers. This capability is required to allow VPS AVS to store patient summary ***.***pdf files to the VA imaging file servers.

The Samba configuration file is named ***smb.conf*** , and is located in directory /etc/samba. The following configurations items are set in smb.conf:

As shown in the example, the “hosts allow” statement, in the **“Network-Related Options”** section, configures the JBoss servers to be allowed to use the Samba service. Each network identifier is ended with a dot.

**hosts allow = 127. 172.16.**

The directory Samba uses for logging is set in the **“Logging Options”** section.

**log file = /var/log/samba/log.%m**

**max log size = 50**

The max log size parameter sets the maximum size in KB that log files may grow before being rotated. See section 7.2 for log file purging information.

The path where AVS image files are stored is defined in the **“Share Definitions”** **[images}** section.

**path = /usr/local/images**

The files stored in /usr/local/images are accessed by the JBoss server running on Linux and by the VistA Imaging Backgroup Processor (BP) running on a Windows server. The JBoss stores images to /usr/local/images, and the BP reads the images from a Window drive that is mapped to /usr/local images. See the VPS AVS Installation Guide for details on mapping the Windows network drive.

The smb.conf file should not be modified. **Modification of this configuration file will require a reconfiguration of the FusionCharts application**.

#### Starting and Stopping Samba

To start Samba enter the command,

**service smb start**

To stop Samba enter the command,

**service smb stop**

### VPS AVS Web Server

The presentation layer of the VPS AVS web client is provided by an Apache Web Server. The displayed After Visit Summary is formatted using HyperText Markup Language 5 (HTML5), Javascript, JSON and XML/XSD files stored in the avs subdirectory in the Apache Web Server htdocs directory.

#### Starting, Stopping, and Restarting VPS AVS Web Server

To start the AVS Web Server, execute ***/sbin/service httpd start*** at a Linux command prompt.

To stop the AVS Web Server, execute ***/sbin/service httpd stop*** at a Linux command prompt.

To restart the AVS Web Server, execute ***/sbin/service httpd reload*** at a Linux command prompt.

### VPS AVS Load Balancing

VPS AVS uses 3 identically configured Apache HTTPD servers, known as worker nodes or balancer members, to distribute application requests among VPS AVS instances. One HTTPD server acts as the parent node directing application requests to two additional Apache HTTPD servers. The parent node and a worker node handle all incoming requests. The third HTTP server is used as a hot standy for requests when the parent and worker node are unavailable.

VPS AVS uses the Weighted Traffic Counting load balancing algorithm. Stickyness is used to force all requests from the same user to be proxied to the same AVS JBoss server. Each balancer member points to an Apache 2.4 web server instance, listening on a specific port. Incoming web requests are distributed across the member web server instances based in web server traffic metrics. Each of the web server instances accept requests to access the VPS AVS J2EE application running under a JBoss application server.

Configuration parameters for VPS AVS load balancing is contained in the ***httpd-proxy-balancer.conf*** file in the Apache server directory ***/usr/local/apache24/conf/extra***. The following is an example of the load balancing configuration statements.

<Proxy balancer://mycluster>

BalancerMember http://172.16.45.116:8080/avs/w/ route=1 //parent node and worker node

BalancerMember http://172.16.45.117:8080/avs/w/ route=2 // second worker node

BalancerMember http://172.16.44.36:8080/avs/w/ route=3 status=+H //hot standby failover node

Order deny,allow

Deny from none

Allow from all

ProxySet stickysession=ROUTEID //force request to stick to the initial request application server

ProxySet lbmethod=bytraffic //load balancing algorithm

</Proxy>

ProxyPass /balancer-manager !

ProxyPass /avs/w balancer://mycluster //direct all requests to the application to the cluster instances

ProxyPassReverse /avs/w balancer://mycluster

### JBoss Application

The VPS JBoss application is provided as a “snapshot” which unpacks to the proper directory structure for the JBoss AVS application.

#### Starting the AVS JBoss Application

To start the AVS JBoss application server as a background process, you will enter the following command at the command prompt, replacing <***server ip address>*** with the site’s JBoss server IP address.

$JBOSS\_HOME/bin/run.sh -c all -g mycluster -b ***<server ip address>***  -Djava.net.preferIPv4Stack=true  
 -Djboss.messaging.ServerPeerID=1 -DjvmRoute="node1"&

$JBOSS\_HOME/bin/run.sh -c node1 -g mycluster -b ***<server ip address>***  -Djava.net.preferIPv4Stack=true -Djboss.messaging.ServerPeerID=2 -DjvmRoute="node2"   
 -Djboss.service.binding.set=ports-01&

#### Stopping the AVS JBoss Application

To stop the AVS JBoss application server, obtain the java process identifiers use the command   
***ps –eaf | grep java***. As shown in the following example, this will display detailed information about the running JBoss servers. The first line of the output for each JBoss server running shows the application name, ***jboss***, followed by the process identifier.

**jboss 27404 1 0 Jun09 ?** 00:00:00 /bin/sh ./run.sh -c all -g mycluster -b 172.16.44.40 -Djava.net.preferIPv4Stack=true -Djboss.messaging.ServerPeerID=1 -DjvmRoute=node1

**jboss 27467 27404 1 Jun09 ?** 01:45:39 /usr/java/jdk1.7.0\_75/bin/java -server -Xms128m -Xmx784m -XX:MaxPermSize=512m -Dorg.jboss.resolver.warning=true -

jboss 44943 44917 0 13:43 pts/2 00:00:00 grep --color=auto java

Run the Linux kill command to stop the running jboss processes.

kill –K ***<process identifier of jboss process>***

### VPS AVS Web Services

VPS AVS implements RESTful (Representationl State Transfer) web services that are called by VPS Kiosk to display a list of After Visit Summary PDF files, retrieve an After Vist Summary PDF for display and/or printing.

The class files implementing the VPS AVS web services are located in the vps-avs-ws.war file in the JBoss sever directory. The VPS AVS web services are configurable via vps-avs-ws.properties file. The vps-avs-ws.properties file should be placed in the **/server/all/conf** folder and copied to /server/node1/conf, /server/node2/conf.

Table : VPS AVS Web Service Properties

| **Property** | **Example Value** | **Description** |
| --- | --- | --- |
| vista.image.server.pdf.path | ***\\\\VPS-DEV01\\C$\\IMAGES\\GCC\\*** | Network Path to location of images directory on the VistA Image Sever. |
| vista.image.server.retryReadAttempts | ***3*** | The number of times the web service will attempt to get image from VistA Image Server. |
| vista.image.server.retryReadWait | ***500*** | The miliseconds the web service will wait between retry attempts. |
| vista.image.server.pdfMaximumByteSize | ***100000000*** | The maximum number of bytes allowed for the image size returned to web service client. |
| vista.link.division | ***050*** | VistA division identifier used to make VistA Link connection. |
| vista.link.duz | ***32*** | VistA duz identifier used to make VistA Link connection. |

#### VPS AVS RESTful WebService API details:

| **AVS RESTful WebService – AVS PDF Query** | |
| --- | --- |
| **Requried Parameters:** | **Response Data:** |
| **Client Identifier (String) (Required)**  *This parameter identifies the source of the WS requests. It is the Kiosk Group Identifier.* | Request Status (Success | Failure) |
| **Veteran Identifier (String) (Required)**  *This parameter is the DFN in PATIENT file #2 identifying a specific Veteran.* | Error Message(s) (Optional) |
| Date Range (ISO 8601 format) (Required)  *This parameter is the starting and ending dates used to query for a veteran’s PDF files.* | Identifier (String) |
|  | Veteran Identifier (String) |
|  | File Name (String) |
|  | Created By (String) |
|  | Created Date Timestamp (ISO 8601 format) |
|  | Base 64 Encoded PDF (base64Binary) |
| **JSON Request URL:** | |
| [http://[host:port]/[servlet context path]/service/afterVisitSummaries.json](http://www.apple.com) | |
| **XML Request URL:** | |
| [http://[host:port]/[servlet context path]/service/afterVisitSummaries.xml](http://w) | |
| **JSON Request Payload:** | **JSON Response Payload:** |
| {  "afterVisitSummarySearchCriteria": {  "clientId": 345,  "veteranId": "765",  "startDate": "2015-01-01",  “endDate" : "2015-02-28"  } } | {  "status": {  "messages": [  {“message”: “User friendly message”}  ],  "requestStatus": "Successful" | “Failure”  },  "payload": {  "afterVisitSummaries": [  {  "id": "0",  "veteranId": "1234",  "fileName": "ZZ000000000193",  "createdBy": "CPRSSUPER, REG",  "createdDate": "2015-02-12T10:25:43",  "base64EncodedPDF": null  },  {  "id": "1",  "veteranId": "1234",  "fileName": "ZZ000000000194",  "createdBy": "CPRSSUPER, REG",  "createdDate": "2015-02-12T10:25:43",  "base64EncodedPDF": null  ]  } } |
| **XML Request Payload:** | |
| <**AfterVisitSummarySearchRequest**>  <**afterVisitSummarySearchCriteria**>  <**clientId**>12345</**clientId**>  <**veteranId**>54321</**veteranId**>  <**startDate**>2015-01-01</**startDate**>  <**endDate**>2015-02-28</**endDate**>  </**afterVisitSummarySearchCriteria**>   </**AfterVisitSummarySearchRequest**> | |
| **XML Response Payload:** | |
| <**WebServiceCollectionResponse**>  <**status**>  <**messages**>  <**message**>User friendly message.</**message**>  </**messages**>  <**requestStatus**>Successful</**requestStatus**>   </**status**>  <**payload**>   <**afterVisitSummaries**>  <**afterVisitSummary**>  <**id**>0</**id**>    <**veteranId**>1234</**veteranId**>  <**fileName**>ZZ000000000193.PDF</**fileName**>   <**createdBy**>CPRSSUPER, REG</**createdBy**>  <**createdDate**>2015-02-12T09:19:34</**createdDate**>   </**afterVisitSummary**>  <**afterVisitSummary**>  <**id**>1</**id**>    <**veteranId**>1234</**veteranId**>  <**fileName**>ZZ000000000194.PDF</**fileName**>  <**createdBy**>CPRSSUPER, REG</**createdBy**>  <**createdDate**>2015-02-12T09:19:34</**createdDate**>  </**afterVisitSummary**>  </**afterVisitSummaries**>  </**payload**> </**WebServiceCollectionResponse**> | |

| Example AVS RESTful WebService Scenario Response for AVS PDF Query Request | | | | | |
| --- | --- | --- | --- | --- | --- |
|  | Scenario Name | Http Status Code | Request Status | Message | Payload |
| 1 | Veteran Not Found | 404 | Failure | Veteran not found. | Empty array of after visit summaries |
| 2 | After Visit Summaries Not Found | 302 | Failure | After Visit Summaries not found. | Empty array of after visit summaries |
| 3 | After Visit Summaries Found | 302 | Success |  | Populated with one or more after visit summaries |
| 4 | Missing Client ID | 400 | Failure | Invalid client identifier. | Empty array of after visit summaries |
| 5 | Invalid Veteran ID | 400 | Failure | Invalid Veteran identifier. | Empty array of after visit summaries |
| 6 | Invalid Date Range | 400 | Failure | Invalid date range. | Empty array of after visit summaries |
| 7 | Invalid Start Date | 400 | Failure | Invalid start date format. | Empty array of after visit summaries |
| 8 | Invalid End Date | 400 | Failure | Invalid end date format. | Empty array of after visit summaries |
| 9 | System Error | 500 | Failure | The system is currently experiencing difficulties servicing your request. Contact your system administrator, if this system issue continues. | Empty array of after visit summaries |
| 10 | After Visit Summaries Too Long | 413 | Failure | The returned after visit summaries exceeds return limit. | Empty array of after visit summaries |

| **AVS WebService - Get AVS PDF** | | |
| --- | --- | --- |
| **Required Parameters:** | Response Date: | |
| Client Identifier (String) (Required)  *This parameter identifies the source of the WS requests. It is the Kiosk Group Identifier.* | Request Status (Success|Failure) | |
| Veteran Identifier (String) (Required)  This *parameter is the DFN in PATIENT file #2 identifying a specific Veteran.* | Error Message(s) (Optional) | |
| afterVisitSummaryId (String) (Required)  *This parameter is the IEN of the after visit summary PDF file stored on the VistA imaging server.* | Identifier (String) | |
|  | Veteran Identifier (String) | |
|  | File Name (String) | |
|  | Created By (String) | |
|  | Created Date Timestamp (ISO 8601 format) | |
|  | Base 64 Encoded PDF (base64Binary) | |
| **JSON Request URL:** | | |
| [http://[host:port]/[servlet](http://[host:port]/%5bservlet) context path]/services/afterVisitSummaries/[afterVisitSummaryId].json?clientId=[clientId]&veteranId=[veteranId] | | |
| **XML Request URL:** | | |
| [http://[host:port]/[servlet](http://[host:port]/%5bservlet) context path]/services/afterVisitSummaries/[afterVisitSummaryId].xml?clientId=[clientId]&veteranId=[veteranId] | | |
| **JSON Request Payload** | | **JSON Request Payload:** |
|  | | {  “status”: {  “messages”: [  {“message”: “User friendly message”}  ]  “requestStatus”: “Successful” | “Failure”  },  “payload”: {  “afterVisitSummary”: {  “id”: 0,  “veteranId”: “ZDY129656”,  “fileName”: “ZZ000000000194.PDF”  “createdBy”: “CPRSSUPER, REG”,   “createdDate”: “2015-01-30T08:25:43.511Z”  “base64EncodedPDF”: “JVBERi0xLjMKJcTl8uXrp/Og0MTGCjQ"  }  } } |
| **XML Request Payload:** | | |
| **XML Response Payload:** | | |
| <**WebServiceResponse**>  <**status**>   <**messages**/>  <**requestStatus**>Successful</**requestStatus**>  </**status**>  <**payload**>  <**afterVisitSummary**>  <**id**>0</**id**>  <**veteranId**>1234</**veteranId**>  <**fileName**>ZZ000000000194.PDF</**fileName**>  <**createdBy**>CPRSSUPER, REG</**createdBy**>  <**createdDate**>2015-02-18T08:53:58</**createdDate**>  <**base64EncodedPDF**>JVBERi0xLjMKJcTl8uXrp/Og0MTGC</**base64EncodedPDF**>  </**afterVisitSummary**>  </**payload**> </**WebServiceResponse**> | | |

#### Example Web Service Call

The example web service call to Get AVS PDF shown in Table 3 shows the results of different AVS PDF requests.

Table : Example AVS RESTful Web Service **Get AVS PDF Request**

| Scenario Name | Http Status Code | Request Status | Message | Payload |
| --- | --- | --- | --- | --- |
| After Visit Summary Not Found | 404 | Failure | After Visit Summary not found. | Empty payload |
| After Visit Summary Found | 302 | Success |  | Populated with one after visit summary |
| Missing PDF ID | 400 | Failure | Invalid PDF identifier. | Empty payload |
| Missing Client ID | 400 | Failure | Invalid client identifier. | Empty payload |
| Invalid Veteran ID | 400 | Failure | Invalid Veteran identifier. | Empty payload |
| System Error | 500 | Failure | The system is currently experiencing difficulties servicing your request. Contact your system administrator, if this system issue continues. | Empty payload |
| PDF Too Large  *Note: The filesystem of the consuming application will determine this limit. For Windows based servers limit is set at 17,592GB for download. For Linux systems, this value is set in the limits.conf file.* | 413 | Failure | The requested PDF is too large to send. | Empty payload |

## Configure AVS for CPRS Tools Menu

VPS After Visit Summary is executed from the CPRS Tools Menu using a web client. The AVS\_Web\_Client.zip file containing the AVS web client should be downloaded from the VA File Transfer Protocol (FTP) site ***download.med.va.gov***. Create a directory for the web client and unzip AVS\_Web\_Client.zip to that directory.

To add VPS AVS to the CPRS Tools Menu, use the VistA option ORW TOOLS MENU ITEMS to display the list of classes that may be configured.

| Select OPTION NAME: **ORW TOOL MENU ITEMS** GUI Tool Menu Items  GUI Tool Menu Items  CPRS GUI Tools Menu may be set for the following:  1 User USR [choose from NEW PERSON]  2 Location LOC [choose from HOSPITAL LOCATION]  2.5 Service SRV [choose from SERVICE/SECTION]  3 Division DIV [choose from INSTITUTION]  4 System SYS [CHEYL117.FO-BAYPINES.MED.VA.GOV]  9 Package PKG [ORDER ENTRY/RESULTS REPORTING] |
| --- |

You may configure items to add to the CPRS Tools Menu by each of the classes displayed i.e., User, Location, Service, etc. In the following example, the After Visit Summary application is added to a User Menu. At the **Enter selection:** prompt, enter **1** to select the User Class

Enter the **LAST,FIRST** name of the user for which AVS should appear in the CPRS Tools menu.

Enter selection: **1** User NEW PERSON

Select NEW PERSON NAME: TESTUSER,ONE

1 TESTUSER,ONE OT 192 SYSTEMS ANALYST

----------- Setting CPRS GUI Tools Menu for User: TESTUSER,ONE -----------

Select Sequence: <**10>**

Enter an unused sequence number. If a sequence number has been previously used, the command assigned to the sequence number will be displayed.

----------- Setting CPRS GUI Tools Menu for User: TESTUSER,ONE -----------

Select Sequence: 10

Are you adding 10 as a new Sequence? Yes//**YES**

Sequence: 10//<ENTER>

Name=Command: After Visit Summary**=<path to AVS web client exe>\webclient.exe** production="0" title="After Visit Summary" stationNo=**”<you station number>"** userDUZ=**"%DUZ"** patientDfn=**"%DFN"** url=**<url of your site’s AVS Web application>**

Select Sequence:<ENTER>

Exit ORW Tool Menu Items. To create and view an After Visit Summary, restart or launch a CPRS session. Click on the Tools Menu and Select After Visit Summary. A browser window will open displaying the After Visit Summary for the CPRS patient selected.

The VPS AVS web client is CCOW-enabled. To use CCOW functionality, Sentillion's Vergence Desktop Components COTS must be installed on the user/client workstation.

# Files

## VistA M Server Files

VPS\*1.0\*4 retrieves data from VistA M Server files owned and maintained by packages external to VPS. The following table lists the VistA M Server files and global references used by VPS\*1.0\*4 RPCs.

Table VistA M Server Files Accessed by VPS\*1.0\*4

| **FILE NAME AND NUMBER** | **GLOBAL REFERENCE** |
| --- | --- |
| ANNUAL MEANS TEST #408.31 | ^DGMT(408.31 |
| BILLING PATIENT #354 | ^IBA(354 |
| BRANCH OF SERVICE #23 | ^DIC(23 |
| CANCELLATION REASON #409.2 | ^SD(409.2 |
| COLLECTION SAMPLE #62 | ^LAB(62 |
| DISABILITY CONDITION #31 | ^DIC(31 |
| ELIGIBILITY CODE #8 | ^DIC(8 |
| EXPRESSIONS #757.01 | ^LEX(757.01 |
| DEVICE FILE #3.5 | ^%ZIS(1 |
| HL LOGICAL LINK #870 | ^HLCS(870 |
| HLO APPLICATION REGISTRY | ^HLD(779.2 |
| HOSPITAL LOCATION #44 | ^SC( |
| ICD DIAGNOSIS #80 | ^ICD9( |
| LAB DESCRIPTIONS #62.5 | ^LAB(62.5 |
| LAB ORDER ENTRY #69 | ^LRO(69 |
| LABORATORY TEST #60 | ^LAB(60 |
| MEANS TEST STATUS #408.32 | ^DG(408.32 |
| NEW PERSON #200 | ^VA(200 |
| ORDER #100 | ^ORD(100 |
| PACKAGE #9.4 | ^DIC(9.4 |
| PATIENT #2 | ^DPT  ^DPT(D0,”S” |
| PATIENT ENROLLMENT #27.11 | ^DGEN(27.11 |
| PATIENT MOVEMENT #405 | ^DGPM( |
| PERIOD OF SERVICE #21 | ^DIC(21 |
| POW PERIOD #22 | ^DIC(22 |
| PROBLEM #9000011 | ^AUPNPROB(“AC”, |
| PROTOCOL #101 | ^ORD(101 |
| PROVIDER NARATIVE #9999999 | ^AUTNPOV |
| RAD/NUC MED ORDERS #75.1 | ^RAO(75.1 |
| REMINDER DEFINITION #811.9 | ^PXD(811.9 |
| STATE #5 | ^DIC(5 |
| TYPE OF PATIENT #391 | ^DG(391 |
| V CPT # 9000010.18 | ^AUPNVCPT(“APPT1” |
| VPS CLINICAL SURVEY | ^VPS(853.8 |
| VPS QUESTIONNAIRE IDENTIFIERS | ^VPS(853.85 |
| VPS QUESTIONNAIRE NAME | ^VPS(853.875 |
| VPS APPOINTMENT QUEUE | ^VPS(853.9 |
| VPS HL7 SITE PARAMETERS | ^VPS(853.1 |

## VPS\*1.0\*5 CSQ Data Files

VPS\*1.0\*5 implements four new VistA database files:

* VPS CLINICAL SURVEY (#853.8)
* VPS QUESTIONNAIRE IDENTIFIERS (#853.85)
* VPS QUESTIONNAIRE NAME (#853.875)
* VPS APPOINTMENT QUEUE (#853.9)
* VPS HL7 SITE PARAMETERS (#853.1)

The VPS CLINICAL SURVEY file (#853.8) stores the clinical survey questionnaire data for each clinic patient. The data in this file is sorted by patient and by survey and is used to populate the Computerized Patient Record System (CPRS) CSQ Ad Hoc Health Summary Reports and CSQ patient data object (PDO).

The VPS QUESTIONNAIRE IDENTIFIERS file (#853.85) stores the key identifiers for a VPS Clinical Survey. The TEMPLATE ID field is the unique identifier for a VPS Clinical Survey version.

The VPS QUESTIONNAIRE NAME file (#853.875) stores the unique name and version number of each VPS CSQ. The data in is files is used to filter report results.

The VPS APPOINTMENT QUEUE file (#853.9) temporarily stores clinic appointment data for a specified date range. The files is used to minimize the number of records that must be returned by the VPS GET UPDATED APPOINTMENTS” RPC.

The VPS HL7 SITE PARAMETERS file (#853.1) stores the flags which control VPS HL7 message transmission.

Attributes for each of these files may be obtained from VistA FileMan.

## VPS\*1.0\*3 MRAR Files

VPS\*1.0\*3 reads data from and writes data to VistA M Server files owned and maintained by VPS. The following table lists the VistA M Server VPS files and global references used by VPS\*1.0\*3 RPCs.

Table VPS\*1.0\*3 VistA M Server Files

| **FILE NAME AND NUMBER** | **GLOBAL REFERENCE** | **SUMMARY DESCRIPTION** |
| --- | --- | --- |
| VPS ALLERGY DISCREPANCY INDICATORS #853.3 | ^VPS(853.3 | This file contains a list of the various indicators that Vecna will send to VistA for the capture of discrepancies between patient reported allergies and the allergy data on file for the patient. A fundamental objective of MRAR is to identify allergy data omissions and medication adherence discrepancies. The Kiosk (patient facing) and the staff-facing interface allows a veteran, staff, or provider to change an allergy status (e.g., allergic to non-allergic). |
| VPS CONFIG HISTORY #853 | ^VPS(853 | This file stores all the changes made to a Kiosk's configuration parameters and facilitates aggregate business intelligence. The current values of Kiosk's parameters are stored in Vetlink's KIOSK database. The business and administrative parameters are used to configure and direct MRAR behavior amongst the Vetlink KIOSK groups or Clinics. Data in this file is populated via RPC call(s) made by the Vetlink client. |
| VPS MED DISCREPANCY INDICATORS #853.7 | ^VPS(853.7 | This file contains a list of the various indicators that Vetlink will send to VistA for the accurate capture of medication discrepancies between patient report medications and medication data on file for the patient. A fundamental objective of MRAR is to identify allergy data omissions and medication adherence discrepancies. The Kiosk (patient facing) and the staff-facing interface allows a veteran, staff, or provider to change a medication status (e.g. from 'NO, not taking' to 'Yes, taking as written'). |
| VPS MRAR PDO #853.5 | ^VPS(853.5 | This file stores patient MRAR data for the (VPS) kiosk application. Data is stored to the files using VPS remote procedure calls that are invoked by the Vetlink Kiosk (patient-facing) or staff-facing client interface. Each patient MRAR review is saved by Vetlink and then sent to VistA, using RPC Broker, for storage.  The data stored in this file is sorted by PATIENT where each patient entry has one or more Medication Review Allergy Review (MRAR) session instances and these MRAR instances are sorted by transaction date/time. Each session represents a complete or incomplete MRAR. |

In addition to VistA M Server files in the VPS namespace, VPS\*1.0\*3 reads data from files in the external namespaces shown in the following table.

Table External Vista M Server Files Asccessed by VPS\*1.0\*3

| **FILE NAME AND NUMBER** | **GLOBAL REFERENCE** |
| --- | --- |
| PATIENT ALLERGIES FILE | ^GMR(120.8 |

### MRAR Instance Structure

The central structure in the VPS MRAR PDO file #853.5 is the MRAR instance sub-file #853.51. A patient may have multiple instances of MRAR sessions. The data collected in MRAR session is stored in an instance structure. **Edits to the MRAR instance should not be made in FileMan**. All edits and updates to an MRAR instance should be made through VetLink or the staff-facing Kiosk application.

The following table shows the complete structure of the VPS MRAR PDO instance (subfile 853.51 of file # 853.5 - VPS MRAR PDO).

| **FIELD NUMBER** | **FIELD NAME, GLOBAL LOCATION** |
| --- | --- |
| .01 | TRXN DATE/TIME (RDX), [0;1] |
| .02 | DEVICE ID (F), [0;2] |
| .03 | KIOSK GROUP (F), [0;3] |
| .04 | ENCOUNTER CLINIC (P44'), [0;4] |
| .05 | APPT DATE/TIME (D), [0;5] |
| .06 | PROVIDER (P200'), [0;6] |
| .12 | MRAR SESSION ID (NJ10,0), [0;11] |
| .13 | INTERFACE MODULE (S), [0;12] |
| 1 | AR INITIATED DT (D), [1;1] |
| 2 | AR COMPLETED DT (D), [1;2] |
| 5 | AR INCOMPLETE DT (D), [1;5] |
| 6 | AR INCOMPLETE REASON TYPE (S), [1;6] |
| 7 | AR SESSION OUTCOME (S), [1;7] |
| 8 | ADD ALLERGY INITIATED DT (D), [2;3] |
| 9 | ADD ALLERGY COMPLETED DT (D), [2;4] |
| 10 | ALLER CHANGE COMPLETED DT (D), [1;8] |
| 11 | ALLER CHANGE INITIATED DT (D), [1;9] |
| 12 | AR FREE TEXT USED (S), [1;12] |
| 13 | AR FREE TEXT COMPLETED DT (D), [1;13] |
| 14 | VET VIEW ADD ALLERGY COMP DT (D), [1;14] |
| 15 | VET VIEW ADD ALLER INIT DT (D), [1;15] |
| 16 | VET VIEW CHANGE ALLER COMP DT (D), [1;16] |
| 17 | VET VIEW CHANGE ALLER INIT DT (D), [1;17] |
| 18 | MR CHANGE REASON INITIATED DT (D), [5;14] |
| 19 | OTH ALLERGY UNK PATIENT (S), [2;1] |
| 20 | NO KNOWN DRUG ALLERGIES (S), [2;2] |
| 21 | MRAR CONDUCTED WITH (Multiple-853.5121), [MRARWITH;0]  .01 MRAR CONDUCTED WITH (S), [0;1] |
| 22 | MR MULTIPLE SESSIONS (S), [5;3] |
| 23 | MR FREE TEXT USED (S), [5;15] |
| 24 | VET VIEW CHG DOD MED COMP DT (D), [6;1] |
| 25 | VET VIEW CHG DOD MED INIT DT (D), [6;2] |
| 26 | VET VIEW CHG NONVA MED COMP DT (D), [6;3] |
| 27 | VET VIEW CHG NONVA MED INIT DT (D), [6;4] |
| 28 | VET VIEW CHG LOCAL MED COMP DT (D), [6;5] |
| 29 | VET VIEW CHG LOCAL MED INIT DT (D), [6;6] |
| 30 | ALLERGIES (Multiple-853.52), [ALLERGY;0]  .01 ALLERGY ENTRY # (NJ10,0X), [0;1]  .02 LOCAL ALLERGY ID (P120.8'), [0;2]  .03 REMOTE ALLERGY ID (NJ10,0), [0;3]  .05 REMOTE ALLERGY NAME (F), [0;5]  .06 AR PATIENT RESPONSE (S), [0;6]  .07 REACTIONS (Multiple-853.57), [REACTIONS;0]  .01 REACTION ENTRY # (NJ10,0), [0;1]  .02 LOCAL REACTION ID (P120.83'), [0;2]  .03 REMOTE REACTION ID (NJ10,0), [0;3]  .04 REMOTE REACTION NAME (F), [0;4]  .09 REMOTE FACILITY (P4'), [0;8] |
| 1 ALLERGY COMMENTS PATIENT (Multiple-853.58), [ACOMM1;0]  .01 ALLERGY COMMENTS PATIENT (W), [0;1] |
| 2 ALLERGY COMMENTS STAFF VIEW (Multiple-853.56), [ACOMM2;0]  .01 ALLERGY COMMENTS STAFF VIEW (Wx), [0;1] |
| 3 ALLERGY COMMENTS VET VIEW (Multiple-853.523), [ACOMM3;0]  .01 ALLERGY COMMENTS VET VIEW (Wx), [0;1] |
| 4 ALLERGY DOD (S), [0;7] |
| 5 ALLERGY CHANGED INDICATORS (Multiple-853.525), [ACHG;0]  .01 ALLERGY CHANGED (P853.3'), [0;1] |
| 6 ALLERGY CONFIRMED INDICATORS (Multiple-853.526), [ACNFR;0]  .01 ALLERGY CONFIRMED (P853.3'), [0;1] |
| 7 ALLERGY DISCREPANCY INDICATORS (Multiple-853.527), [ADISCR;0]  .01 ALLERGY DISCREPANCY (P853.3'), [0;1] |
| 12 ALLERGY CHANGED (P853.3'), [0;22] |
| 13 ALLERGY CONFIRMED (P853.3'), [0;23] |
| 14 ALLERGY DISCREPANCY (P853.3'), [0;24] |
| 16 ALLERGY-MARK FOR FOLLOWUP (S), [0;26] |
| 31 | VET VIEW CHG REMOT MED COMP DT (D), [6;7] |
| 32 | VET VIEW CHG REMOT MED INIT DT (D), [6;8] |
| 33 | WEB ID (F), [7;1] |
| 40 | ADDITIONAL ALLERGIES (Multiple-853.53), [ALLERGYADD;0]  .01 ADDITIONAL ALLERGIES ENTRY # (MNJ10,0), [0;1]  1 ADD ALLERGY-VET (Multiple-853.531), [1;0]  .01 ADD ALLERGY-VET (Wx), [0;1]  1.5 ADD ALLERGY-PROVIDER (Multiple-853.59), [2;0]  .01 ADD ALLERGY-PROVIDER (Wx), [0;1]  2 ADD ALLERGY REACTION (STAFF) (F), [0;3]  3 ADD ALLERGY ADDED BY (S), [0;4]  4 ADD ALLERGY-MARK FOR FOLLOWUP (S), [0;5]  5 ADD ALLERGY NOT KNOWN (S), [0;2] |
| 50 | MEDICATIONS (Multiple-853.54), [MEDS;0]  .01 MEDICATION ENTRY # (NJ10,0X), [0;1]  1 PRESCRIPTION ID (NJ10,0), [0;2]  2 PROVIDER NAME (F), [0;3]  3 FILL LOCATION (P4'), [0;4]  4 LAST FILL DATE (D), [0;5]  5 DAYS SUPPLIED (NJ3,0), [0;6]  6 # REFILLS LEFT (NJ2,0), [0;7]  7 NEXT FILL DATE (D), [0;8]  8 MED EXPIRE DATE (D), [0;9]  9 MED ID (NJ10,0), [0;10]  10 MEDICATION NAME (F), [0;11]  11 MR PRESET PATIENT RESPONSE (S), [0;12]  12 RX STATUS (S), [0;13]  13 MED SIG (F), [SIG;1]  14 MED DOSAGE (F), [0;14]  15 MED DOSAGE FORM (F), [0;15]  16 MEDS-MARK FOR FOLLOWUP (S), [0;16]  17 MED ROUTE (F), [0;17]  18 MED IMAGE INDICATOR (S), [0;18]  19 MED FINISHING PERSON (F), [2;1]  20 NATIONAL DRUG SID (F), [3;1]  21 NON-VA (S), [0;21]  22 MAX REFILLS (NJ2,0), [0;22]  23 MEDICATION COMMENTS PATIENT (Multiple-853.5423), [MEDCOM;0]  .01 MEDICATION COMMENTS PATIENT (Wx), [0;1]  24 MEDICATION COMMENTS STAFF VIEW (Multiple-53.5424),[MEDCOM2;0]  .01 MEDICATION COMMENTS STAFF VIEW (Wx), [0;1]  25 MEDICATION COMMENTS VET VIEW (Multiple-853.5425), [MEDCOM3;0]  01 MEDICATION COMMENTS VET VIEW (Wx), [0;1]  26 RX PATIENT STATUS (F), [2;2]  27 RX NUMBER (NJ9,0), [0;19]  28 RX OUTPATIENT ID (NJ9,0), [0;20]  29 RX SC FLAG (S), [2;3]  30 MEDICATION DISCREPANCY (P853.7'), [1;1]  31 MEDICATION CHANGED (P853.7'), [1;2]  32 MEDICATION CONFIRMED (P853.7'), [1;3]  33 CANCEL DT (D), [2;4]  34 CMOP STATUS (S), [2;5]  35 COUNSELED FLAG (S), [2;6]  36 COUNSELING UNDERSTOOD FLAG (S), [2;7]  37 DIVISION SID (F), [4;1]  38 ENTERED BY (F), [4;2]  39 MED ISSUE DT (D), [4;3]  40 COPAY TRANSACTION (F), [5;1]  41 EBILL ACTION NUMBER (NJ9,0), [5;2]  42 ETL BATCH ID FAILURE (NJ9,0), [5;3]  43 RELEASE DT (D), [2;8]  44 QUANTITY SUPPLIED (NJ12,2), [2;9]  45 MED REMOTE (S), [3;2]  46 REMOTE MED FACILITY (F), [3;3]  47 DRUG NAME W/O DOSE (F), [2;10] |
|  | 48 HIGH RISK MED CLASS (F), [6;1]  49 HIGH RISK MED NAME (F), [6;2]  50 HIGH RISK MED YEAR (NJ4,0), [6;3]  51 MED IMAGE (S), [6;4]  52 MED DISCREPANCY INDICATORS (Multiple-853.5452), [MDISCR;0]  .01 MED DISCREPANCY (P853.7'), [0;1]  53 MED CHANGED INDICATORS (Multiple-853.5454), [MCHG;0]  .01 MED CHANGED (P853.7'), [0;1]  55 MED CONFIRMED INDICATORS (Multiple-853.5455), [MCNFR;0]  .01 MED CONFIRMED (P853.7'), [0;1]  56 PRODUCT SOURCE (S), [2;11]  57 PRODUCT NAME (P50.68'), [2;12]  58 VET VIEW MED IMAGE INDICATOR (S), [0;23] |
| 60 | ADDITIONAL MEDICATIONS (Multiple-853.55), [MEDSADD;0]  .01 ADDITIONAL MEDICATIONS ENTRY # (MNJ10,0), [0;1]  1 PATIENT-FACING ADD MEDICATION (F), [0;2]  2 STAFF VIEW ADD MEDICATION (F), [1;1]  3 VET VIEW ADD MEDICATION (F), [1;2]  4 VET PLANS TO DISCUSS ADD MED (S), [1;3]  5 ADD MED FREQUENCY (PATIENT) (S), [0;3]  6 ADD MED DIRECTIONS (PATIENT) (F), [0;4]  7 ADD MED COMMENTS-STAFF VIEW (Multiple-853.557), [AMCOMM;0]  .01 ADD MED COMMENTS-STAFF VIEW (Wx), [0;1]  8 ADD MED DOSE (STAFF) (F), [1;4]  9 ADD MEDS-MARK FOR FOLLOW-UP (S), [1;5]  10 ADD MED INDICATION (STAFF) (F), [2;1]  11 ADD MED TIME (PATIENT) (S), [0;5]  12 ADD MED COMMENTS-VET VIEW (Multiple-853.5512), [AMCOMM2;0]  .01 ADD MED COMMENTS-VET VIEW (Wx), [0;1] |
| 70 | PDO FIRST INVOKED DT (D), [4;1] |
| 72 | PDO INVOCATION ERROR (S), [4;3] |
| 73 | PDO NEXT INVOKED DT (D), [4;4] |
| 74 | STAFF MODULE COMPLETED DT (D), [4;5] |
| 76 | STAFF MODULE SIGNED DT (D), [4;7] |
| 77 | MR INITIATED DT (D), [5;1] |
| 78 | MR COMPLETED DT (D), [5;2] |
| 80 | MR CHANGE MED INITIATED DT (D), [5;4] |
| 81 | MR CHANGE MED COMPLETED DT (D), [5;5] |
| 82 | MR CHANGE REASON COMPLETED DT (D), [5;6] |
| 83 | MR INCOMPLETE REASON TYPE (S), [5;7] |
| 84 | MR FREE TEXT SECTION DONE DT (D), [5;8] |
| 85 | MR SESSION OUTCOME (S), [5;9] |
| 86 | MR ADD MED INITIATED DT (D), [5;10] |
| 87 | MR ADD MED COMPLETED DT (D), [5;11] |
| 88 | VET VIEW ADD MED INITIATED DT (D), [5;12] |
| 89 | VET VIEW ADD MED COMPLETED DT (D), [5;13] |
| 92 | VET VIEW CHG ALL MED INIT DT (D), [5;16] |
| 93 | VET VIEW CHG ALL MED COMP DT (D), [5;17] |
| 95 | MR INCOMPLETE DT (D), [5;19] |
| 105 | TIU NOTE (P8925'), [4;8] |

## VPS SQL Database

VPS AVS stores site specific clinical data and prefrences in a Microsoft SQL Sever database, named ***clinical*** and stores VA enterprise Standard Data Service database, name ***vhasds***. These databases are created and populated during VPS AVS installation. Subsequent updates of these databases will be done during VPS AVS enhancement and/or maintenance releases.

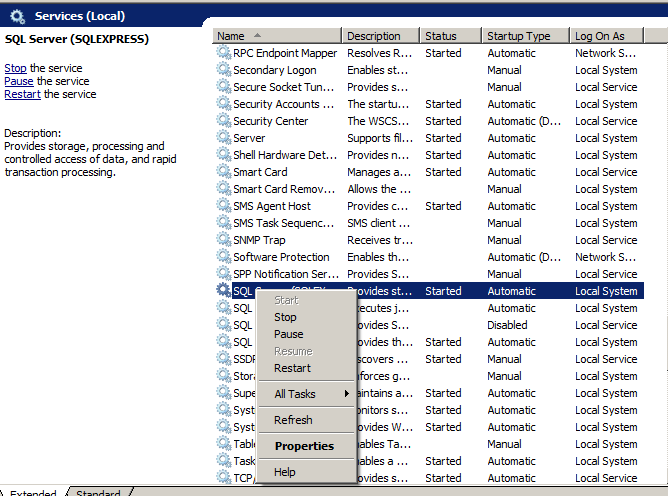
### Restarting the VPS AVS SQL Server

The VPS AVS SQL Server may be stopped, started, and restarted from the Window Services dialog.

1. Click the Windows ***Start*** button.
2. Enter ***services.***msc as shown and press the <ENTER> key.

Services

1. Right click **SQL Server** in the Services list and select Restart, or, Stop followed by Start.



## VPS AVS Database Files

The following table lists the VPS AVS ***clinical***  database tables

| **Table Name** | **Description** |
| --- | --- |
| dbo.ckoClinicPrefs | Stores the AVS display layout and boilerplate text by the clinic provider |
| dbo.ckoEncounter | Stores clinic encounter information and is linked to dbo.ckoEncounterCache and dbo.ckoEncounter Provider by encounterCacheID. |
| dbo.ckoEncounterCache | Stores encounter patient clinical indicators of data requested to populate AVS and AVS actions taken. |
| dbo.ckoEncounterProvider | Stores clinic encount provider specific information and is linked to dbo.ckoEncounterCache and dbo.ckoEncounter by encounterCacheID. |
| dbo.ckoFacilityPrefs | Stores facility timeZon and other site specific localications. |
| dbo.ckoHealthFactors | This table is not currently used by AVS. |
| dbo.ckoLanguage | This table is not currently used by AVS. |
| dbo.ckoMedDescriptions | Stores NDC medication descriptions. |
| dbo.ckoProviderPrefs | Stores AVS display layout and boilerplate ted by provider. |
| dbo.ckoPvsClinic | Stores site specific printer information. |
| dbo.ckoPvsClinicalReminders | This table is not currently used by AVS. |
| dbo.ckoPvsPrintLog | This table is not currently used by AVS. |
| dbo.ckoServices | Stores site specific Service information including location, hours of operation, and phone number. |
| dbo.ckoStringResources | Stores site specific AVS field name to display label translations. |
| dbo.ckoTranslations | Stores site specific AVS field value to display value translations. |
| dbo.ckoUsageLog | Sores the AVS Java actions executed by each site. |
| dbo.ckoUserSettings | Stores user printer preferences. |
| dbo.vhaSite | Stores facility/station VistA connection information. |
| dbo.vhaVisn | Stores VHA VISN information. |

## VPS\*1.0\*15 VistA M Server Files

VPS AVS retrieves data from VistA M Server files owned and maintained by packages external to VPS, as well as VPS AVS VistA files. The following table lists the VistA M Server files and global references used by VPS AVS RPCs.

Table VistA M Server Files Accessed by VPS AVS

| **FILE NAME AND NUMBER** | **GLOBAL REFERENCE** |
| --- | --- |
| APPOINTMENT STATUS #409.63 | ^SD(409.63, |
| FACILITY MOVEMENT TYPE #405.1 | ^DG(405.1, |
| HOSPITAL LOCATION #44 | ^SC( |
| MEDICAL CENTER DIVISION | ^DG(40.8, |
| NEW PERSON #200 | ^VA(200, |
| PARAMETERS #8989.5 | ^XTV(8989.5, |
| PATIENT #2 | ^DPT( |
| PATIENT ALLERGIES | ^GMR(120.8, |
| PATIENT MOVEMENT #405 | ^DGPM(“ATID1”, |
| PATIENT TEAM ASSIGNMENT | ^SCPT(404.42, |
| PENDING OUTPATIENT ORDERS | ^PS(52.41, |
| POSITION ASSIGNMENT HISTORY | ^SCTM(404.52, |
| PRESCRIPTION | ^PSRX( |
| RECALL REMINDERS | ^SD(403.5, |
| SERVICE/SECTION #49 | ^DIC(49, |
| STATION NUMBER #389.9 | ^VA(389.9, |
| TEAM POSITION | ^SCTM(404.57, |
| TITLE #3.1 | ^DIC(3.1, |
| USR CLASS MEMBERSHIP | ^USR(8930.3, |
| VPS IMAGE IMPORT FILE #853.2 | ^VPS(853.2 |
| VPS AVS LAB CHARTING MAPPING #853.25 | ^VPS(853.25 |
| WARD LOCATION #42 | ^DIC(42, |

# Global Translation, Journaling and Protection

## VPS Globals

Table : VPS Globals

| **Global** | **Description** |
| --- | --- |
| ^VPS(853 | This global stores all the changes made to Kiosk's configuration parameters to  facilitate aggregate business intelligence. |
| ^VPS(853.1 | This global stores VPS HL7 Site parameters and activate or deactivate HL7 transmission flag. |
| ^VPS(853.2 | This global stores the imported AVS .PDF image import information. |
| ^VPS(853.3 | This global contains a list of the various indicators that Vecna will send to VistA for the accurate capture of discrepancies and non-discrepancies. |
| ^VPS(853.5 | This global stores patient Medication Review Allergy Review (MRAR) session instances. |
| ^VPS(853.7 | This global contains a list of the various indicators that Vetlink will send to VistA for the accurate capture of medication discrepancies and non-discrepancies. |
| ^VPS(853.8 | This global contains the Clinical Survey Questionnaire data file for VA Point of Service. |
| ^VPS(853.85 | This global contains the key identifiers for a VPS Clinical Survey. |
| ^VPS(853.875 | This global is used to store the unique names of the VPS Clinical Survey Questionnaire. |
| ^VPS(853.9 | This global is a temporary file containing appointments for a given date range and is populated by "VPS GET APPOINTMENTS" RPC. |

## Translation

The VPS globals should be translated, if the operating system supports this function.

## Journaling

The VPS globals should be journaled, if the operating system supports this function.

# Routines

## Detailed VPS RPC Information

Details on the input parameters and the output produced by each of the VPS RPCs may be obtained from a FileMan inquiry to the REMOTE PROCEDURE file # 8994.

1. Sign on to **VistA** system
2. Select option **VA FILEMAN DIUSER**.
3. Select the **Inquire to File Entries** option
4. OUTPUT FROM WHAT FILE: **REMOTE PROCEDURE**
5. Select REMOTE PROCEDURE NAME: **<ENTER THE VPS RPC NAME>**
6. ANOTHER ONE: **`<ENTER>**
7. STANDARD CAPTIONED OUTPUT? Yes//**Y**
8. Include Computed fields: (N/Y/R/B): NO// **<ENTER>**
9. The entry for the VPS RPC NAME entered at step 5 is listed.
10. Include Computed fields: (N/Y/R/B): NO// **<ENTER>**
11. The entry for the VPS RPC NAME entered at step 5 is listed.

## VPS\*1.0\*4 Routines

Table VPS\*1.0\*4 VistA Routines

| **ROUTINE NAME** | **DESCRIPTION** |
| --- | --- |
| VPSRPC1 | This routine provides functionality for VPS GET PATIENT DEMOGRAPHICS, VPS GET2 PATIENT DEMOGRAPHICS RPCs and VPS ENHANCED GET PATIENT DEMO. |
| VPSRPC10 | VPSRPC10 implements VPS GET ALL CLINICS RPC and returns a list of hospital locations defined in the HOSPITAL LOCATION file #44. |
| VPSRPC11 | VPSRPC11 provides supporting utilities for VPS Demographic, scheduling and other patient registration information. |
| VPSRPC12 | This routine provides the functionality of VPS ENHANCED GET PATIENT DEMO RPCs returning detailed patient laboratory order data. |
| VPSRPC13 | This routine provides the functionality of VPS ENHANCED GET PATIENT DEMO RPCs returning a patient’s list of consults and procedures. |
| VPSRPC14 | VPSRPC14 provides utility function to support retrieval and return of radiology imaging data for the VPS ENHANCED GET PATIENT DEMO RPC. |
| VPSRPC15 | This routine provides the functionality of VPS ENHANCED GET PATIENT DEMO RPCs returning a patient’s problem list. |
| VPSRPC16 | VPSRPC16 is an extension of VPS ENHANCED GET PATIENT DEMOGRAPHICS. VPSRPC16 provides eligibility, enrollment, military service, environmental factors, etc. |
| VPSRPC26 | This routine provides the functionality to return patient flags, balanced owed and other demographic, registration, and eligibility information. VPSRPC26 is an extension of VPS ENHANCED GET PATIENT DEMOGRAPHICS. VPSRPC26 provides insurance, special factors (POW, PH, etc.) Changed Date/Time, and primary care data. |
| VPSRLBLS | This routine implements RPC VPS PRINT PATIENT LABEL. The RPC prints the patient label using the standard VistA print patient label routine (DGPLBL) |
| VPSPRINT | A set of common application program interfaces (APIs) to support VPS printing functionality. |
| VPSPTCR | Procedures and functions to retrieve clinical reminders applicable to a patient and “Due Now”. |
| VPSRWRIST | Procedures and functions to print a patient wristband with barcode. This routine implements RPC VPS PATIENT WRISTBAND PRINT. The RPC prints a patient wristband to a VistA printer in a secure area.  The RPC requires the printer device name, patient identifier type, and a patient identifier of the specified type. |

### VPS\*1.0\*4 RPCs

The VPS\*1.0\*4 routines are executed by remote procedure calls through VistA RPC Broker. The following table lists the VPS\*1.0\*4 RPCs giving the RPC tag and routine name used for invocation

Table VPS\*1.0\*4 RPCs - Tags and Routines

| **RPC NAME** | **TAG** | **ROUTINE** |
| --- | --- | --- |
| VPS ENHANCED GET PATIENT DEMO | GETDATA3 | VPSRPC1 |
| VPS PRINT PATIENT LABEL | PRINT | VPSRLBLS |
| VPS PATIENT WRISTBAND PRINT | PRINT | VPSWRIST |
| VPS GET PRINTERS | DEVICE | VPSPRINT |
| VPS GET ALL CLINICS | ALLCLN | VPSRPC10 |
| VPS GET CLINICAL REMINDERS | REMIND | VPSPTCR |

## VPS\*1.0\*5 Routines

Table VPS\*1.0\*5 Vista Routines

| **ROUTINE NAME** | **DESCRIPTION** |
| --- | --- |
| VPSAPPT | This routine implements the VPS GET APPOINTMENTS RPC which returns all appointments for a patient in a given date range. The routine stores all returned appointments for a clinic or kiosk group to an appointment queue file. |
| VPSAPPT2 | This routine implements the VPS GET CHANGED APPOINTMENTS RPC which returns the appointments which have changed since the last execution of the VPS GET APPOINTMENTS RPC. |
| VPSSRVY1 | This routine implements VPS SAVE CLINICAL SURVEY RPC. This routine stores the patient responses to a clinical survey questionnaire. The routine stores questionnaire attributes such as unique identifiers and version information linked to questionnaire questions and the patient responses to each question. |
| VPSSRVY2 | This routine implements VPS GET SURVEY DATA RPC which returns a patient's clinical survey questionnaire information. The routine provides the capability to filter the results by questionnaire attributes, name and/or unique identifier (with imbedded version) and/or date range filters. |
| VPSSRVY3 | This routine extends VPSSRVY2. The routine creates clinical survey patient data objects and generates two Ad Hoc Health Summary reports accessible through the CPRS Reports tab. Additionally the routine provides the capability for users to create customized Ad Hoc Health Summary reports filtered by questionnaire attributes and/or date range. |
| VPSSEND | This routine executes in response to a trigger event monitored by the SCHEDULING APPOINTMENTS EVENT protocol and constructs a HL7 ADT-01 messages which is then transmitted by the VistA HLO HL7 message system. |

### VPS\*1.0\*5 RPCs

The VPS\*1.0\*5 routines are executed by remote procedure calls through VistA RPC Broker. The following table lists the VPS\*1.0\*5 RPCs giving the RPC tag and routine name used for invocation

Table VPS\*1.0\*5 RPCs - Tags and Routines

| **RPC NAME** | **TAG** | **ROUTINE** |
| --- | --- | --- |
| VPS GET APPOINTMENTS | GET | VPSAPPT |
| VPS GET CHANGED APPOINTMENTS | GETCHG | VPSAPPT |
| VPS SAVE CLINICAL SURVEY | SAVE | VPSSRVY1 |
| VPS GET SURVEY DATA | GETRPC | VPSSRVY2 |

## VPS\*1.0\*3 Routines

Table VPS\*1.0\*3 VistA Routines

| **ROUTINE NAME** | **DESCRIPTION** |
| --- | --- |
| VPSALL01 | Procedures and function calls to read patient allergy data in PATIENT ALLERGIES FILE #120.8. |
| VPSDDCU | Utility routine to remove obsolete fields in files 853.54 and 853.52. This routine is automatically executed during installation and is automatically deleted when installation is completed. |
| VPSMR51 | Procedures and function calls to read “conducted with” data for a patient medication review and allergy review. |
| VPSMR52 | Procedures and function calls to store patient allergy and allergy reaction data to the allergy multiple 853.52. |
| VPSMR54 | Procedures and function calls to store patient allergy and allergy reaction data to the medications multiple 853.54. |
| VPSMRAR0 | Procedures and function calls to store patient’s MRAR instance data values and create the patient’s MRAR PDO. |
| VPSMRAR1 | Procedures and function calls to store patient’s MRAR instance data values and create the patient’s MRAR PDO. |
| VPSMRAR2 | Procedures and functions to store a patient’s allergy data to VPS MRAR files. |
| VPSMRAR3 | Procedure and functions to store a patient’s additional allergy data to VPS MRAR files. |
| VPSMRAR4 | Procedures and functions to store a patient’s medication data to VPS MRAR files. |
| VPSMRAR5 | Procedures and functions to store a patient’s additional medication data to VPS MRAR files... |
| VPSMRAR7 | Procedures and functions to store a patient’s allergy reaction data to VPS MRAR files. |
| VPSMRAR9 | Procedures and function to read an identified patient’s MRAR clinical data. |
| VPSMRARU | Procedures and functions to update an identified patient’s most recent MRAR clinical data with the applicable TIU document internal entry number (IEN). |
| VPSOBJ | VPSPDO report formatting procedures and functions. |
| VPSPARAM | Procedures and functions to store outpatient clinic kiosk configuration parameters used to define clinic kiosk functionality and devices. |
| VPSPDO1 | Procedures and function calls to read a patient’s MRAR clinical data to provide PDO output. |
| VPSPDO1M | VPSPDO report formatting procedures and functions for medications. |
| VPSPDO2 | VPSPDO procedures and functions for patient allergies and allergy reactions. |
| VPSPDO2M | VPSPDO report formatting procedures and functions for medications. |
| VPSPDO3M | VPSPDO report formatting procedures and functions for medications. |
| VPSUTL1 | VPSPDO supporting utilities and functions. |

### VPS\*1.0\*3 RPCs

The VPS\*1.0\*3 routines are executed by remote procedure calls through VistA RPC Broker. The following table lists the VPS\*1.0\*3 RPCs giving the RPC tag and routine name used for invocation

Table VPS\*1.0\*3 RPCs - Tags and Routines

| **RPC NAME** | **TAG** | **ROUTINE** |
| --- | --- | --- |
| VPS GET ALLERGIES | GET | VPSALL01 |
| VPS WRITE MRAR PDO | WRITE | VPSMRAR1 |
| VPS WRITE KIOSK PARAMETERS | WRITE | VPSPARAM |
| VPS GET MRAR PDO | GET | VPSPDO1 |
| VPS GET LAST MRAR | GET | VPSMRAR9 |
| VPS UPDATE LAST MRAR TIU IEN | UPDATE | VPSMRARU |

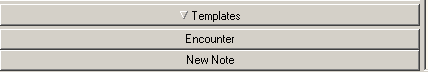
### MRAR Patient Data Object and Health Summary Report

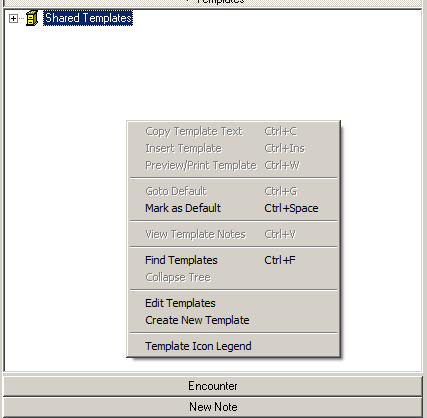
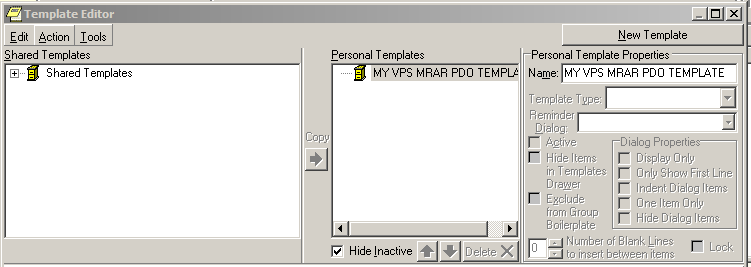
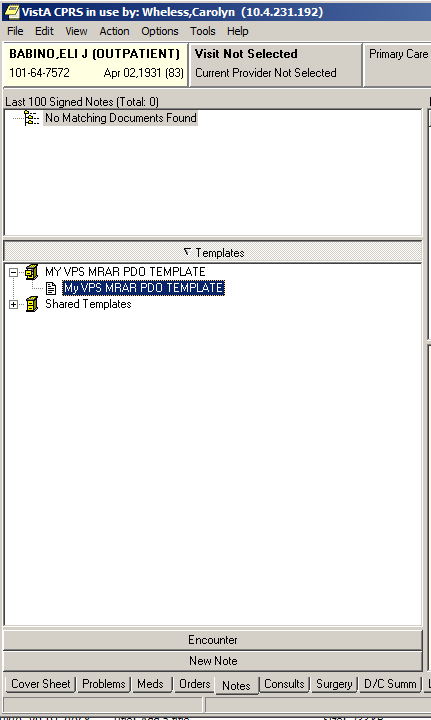
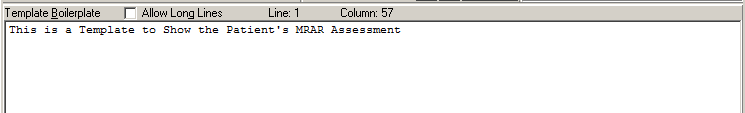
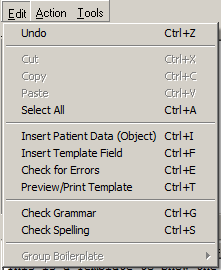
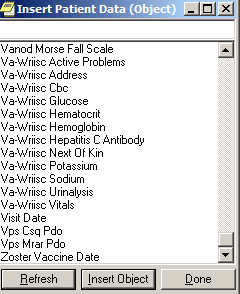
A patient data object (PDO) is dynamically created and available in the Computerized Patient Record System (CPRS). VPS\*1\*3 provides a TIU Document Definition for the VPS MRAR PDO object. This object when accessed invokes the $$TIU^VPSPDO1 M (MUMPS) run routine passing in the patient’s identifier. The VPS M language run routine VPSPDO1 routine reads the VPS MRAR PDO file to create the MRAR PDO object.

### Insert VPS MRAR PDO into CPRS TIU Note

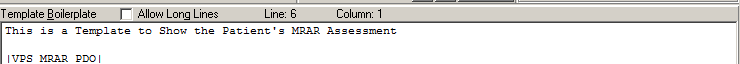
To insert the patient’s VPS MRAR PDO object into a CPRS Note, create or edit a TIU template.

1. Select a patient in CPRS.
2. Click the **Notes** tab.
3. Click the **Template** dropdown list:

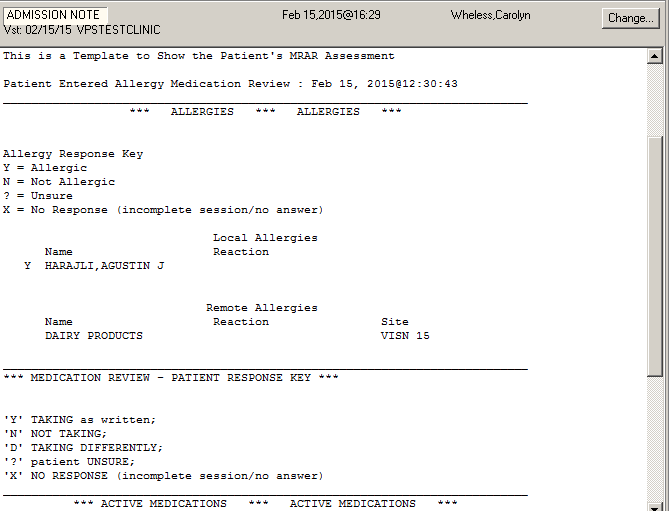


1. Right-click in the **Template** window and select **Create New Template** entry**.**  
   
2. In the top section of the Template Editor window, enter a name for the template e.g., **MY VPS MRAR PDO TEMPLATE.** Click the **OK** button.  
   
3. A personal template folder is created with a blank MyVPS MRAR PDO TEMPLATE.as shown in the following screen capture.  
   
4. Right-click the “My VPS MRAR PDO TEMPLATE and select “Edit Template” from the list.
5. In the lower portion of the Template Editor, enter text to be included in the template.  
   
6. Click the **Edit** menu item and select **Insert Patient Data (Object).**  
   
7. Choose **VPS Mrar PDO** from the list.

The reference to the VPS MRAR PDO will appear at the current cursor location in the lower portion of the Template Editor as shown in the next screen capture.



When finished entering text and/or other PDO objects, click the **OK** button

1. To create a TIU document using the “My VPS MRAR PDO TEMPLATE”, double-click the template name.  
     
     
   Select the Visit Location from the “Location for Current Activities dialog box.  
   Select the Date//Time of Visit.  
   Click **OK** button.  
   Select the Progress Note Title from the Progress Note Properties dialog box.  
   Click **OK** button.
2. The TIU Note is displayed.  
   

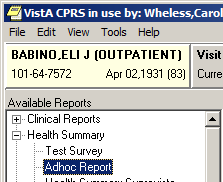
### VPS MRAR Ad Hoc Health Summary

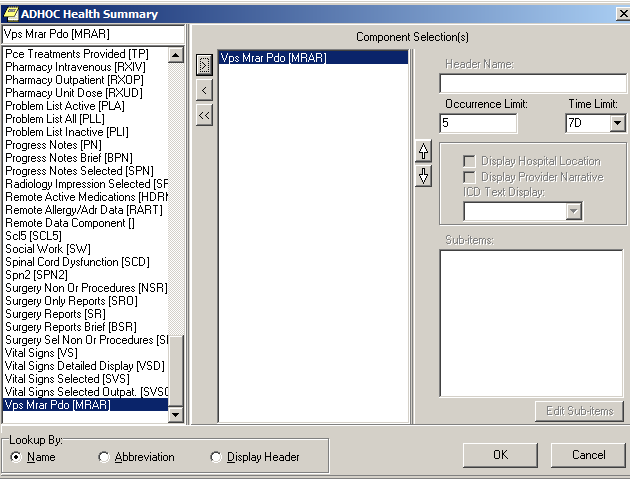
The following instructions and screen shots provide an example of viewing and printing a VPS MRAR Ad Hoc Health Summary Report.

1. Login to CPRS and select a patient with an MRAR assessment.
2. Click the Reports tab displayed at the bottom of the CPRS window.

Ad Hoc Health Summary

1. Click Health Summary in the left-menu and then click Adhoc Report



1. Scroll to the bottom of the ADHOC Health Summary list and Click the **Vps Mrar Pdo (MRAR)** entry. Click the right-arrow to select the component. The occurrence limit and time limit are auto-populated with the allowed values.  
   
2. Click the **OK** button to view the report on the screen.
3. To print the report right-click in the report window and select Print.  
   Exported Options

## VPS\*1.0\*15 Routines

Table VPS AVS VistA Routines

| **ROUTINE NAME** | **DESCRIPTION** |
| --- | --- |
| VPSAVS01 | This routine returns NEW PERSON file #200 entries for display in a list box. |
| VPSAVS02 | This routine provides subroutines to read a patient’s allergiers from PATIENT ALLERGIES file #120.8 and the corresponding adverse reaction data. Additionally the routine provides subroutines tor obtain details of an identified laboratory order for a patient, a patient’s system level clinical reminder detail. |
| VPSAVS03 | This routine converts a date to the internal VA FileMan format, and returns an identified variable’s value. |
| VPSAVS04 | This routine provides AVS functions and subroutines to provide supporting patient related data. The routine returns a list of clinics from the Hospital Location file #44, patient’s date of death, patient demographic data, and the patient’s primary care team information. |
| VPSAVS05 | This routine provides subroutines and funtions to export the AVS Portable Data Format (PDF) files to a GNU Compiler Collect (GCC) network shared path, and retrieve an end-user’s default CPRS Orders tab view. |
| VPSAVS06 | This routine returns a list of a patient’s active inpatient and/or outpatient medications. |
| VPSAVS07 | This routine provides a patien’ts most recent vitals information for a date range. |
| VPSAVS08 | This routine provides subroutines and function to return patient clinic appointments for a date range, facility treating specialty data, and end-user division and institution data. |
| VPSAVS09 | This routine provides subroutines to return the list of labs displayed on the CPRS GUI cover sheet for a specified patient, and to return patient demographic and enrollment data. |
| VPSAVS10 | This routine provides an report of a patient’s lab test results for a given date range, and a patient’s encounter information. |
| VPSAVS11 | This routine provides subroutines and functions to return a list of the remote VA facilities at which the patient has received care, and the end-user CPRS preferences. |
| VPSAVS12 | This routine saves a patient’s primary care encounter data entered into CPRS GUI. |
| VPSAVS13 | This routine provides a patient’s appoint data for a date range. |
| VPSAVS14 | This routine returns the display group information and patient problem list data. |
| VPSAVS15 | This routine provides a patient’s vital and laboratory test information for a date range. |
| VPSAVS16 | This routine provides patient order data for a given list of patient orders. |
| VPSAVS17 | This routine provides subroutines and functions to obtain a patient’s detailed order information and validate an end-user’s membership in the AVS Administrator’s group. |
| VPSAVS18 | This routine provides routines and functions to save and retrieve an AVS PDF image file. |
| VPSAVS19 | This routine provides a patient’s AVS image import entries for a date range. |
| VPSAVS20 | This routine provides the primary care provider name and team position for a patient’s assigned primary care team. |

### VPS AVS RPCs

The VPS AVS routines are executed by remote procedure calls through VistA RPC Broker. The following table lists the VPS AVS RPCs giving the RPC tag and routine name used for invocation

Table New VPS AVS RPCs - Tags and Routines

| **RPC NAME** | **TAG** | **ROUTINE** |
| --- | --- | --- |
| VPS NEWPERS | NEWPERS | VPSAVS01 |
| VPS REMINDER DETAIL | REMDET | VPSAVS02 |
| VPS AL LIST | LIST | VPSAVS02 |
| VPS AL DETAIL | ADETAIL | VPSAVS02 |
| VPS LR DETAIL | DETAIL | VPSAVS02 |
| VPS DT | DT | VPSAVS03 |
| VPS GET VARAIABLE VALUE | VARVAL | VPSAVS03 |
| VPS DIEDON | DT | VPSAVS03 |
| VPS PRCARE | PRCARE | VPSAVS04 |
| VPS ID INFO | IDINFO | VPSAVS04 |
| VPS CLINLOC | CLINLOC | VPSAVS04 |
| VPS VST | DIEDON | VPSAVS04 |
| VPS VWGET | VWGET | VPSAVS05 |
| VPS EXPORT AVS IMAGES | EXPORT | VPSAVS05 |
| VPS MED ACTIVE | ACTIVE | VPSAVS06 |
| VPS VITALS | FASTVIT | VPSAVS07 |
| VPS CLINIC PATIENTS | CLINPTS2 | VPSAVS08 |
| VPS SPECIALTIES | SPEC | VPSAVS08 |
| VPS PROB COMMENTS | GETCOMM | VPSAVS08 |
| VPS PROBLEM LIST | PROBL | VPSAVS14 |
| VPS SC408 INSTITUTION | SC408I | VPSAVS08 |
| VPS SC408 | SC408 | VPSAVS09 |
| VPS PT SELECT | SELECT | VPSAVS09 |
| VPS LAB | LAB | VPSAVS09 |
| VPS PCE4NOTE | PCE4NOTE | VPSAVS10 |
| VPS INTERIM | INTERIM | VPSAVS10 |
| VPS USERINFO | USERINFO | VPSAVS11 |
| VPS FACLIST | FACLIST | VPSAVS11 |
| VPS VISITS/APPTS | VSITAPPT | VPSAVS13 |
| VPS MAPSEQ | MAPSEQ | VPSAVS14 |
| VPS ITEMDATA | ITEMDATA | VPSAVS15 |
| VPS GET4LST | GET4V11 | VPSAVS16 |
| VPS OR DETAIL | DETAIL | VPSAVS17 |
| VPS AVS ADMIN | AVSADM | VPSAVS17 |
| VPS AVS IMAGE LIST | LIST | VPSAVS19 |
| VPS PROVIDER TEAM POSITION | PROVPOS | VPSAVS20 |

### VPS and External Package RPCs Called by AVS

The following RPCs called directly by the VPS AVS J2EE application.

Table : VPS and External Pacage RPCs Called by AVS J2EE application

| **RPC NAME** | **TAG** | **ROUTINE** |
| --- | --- | --- |
| MAG4 REMOTE IMPORT | REMOTE | MAGGSIUI |
| ORQQPX REMINDERS LIST | REMIND | ORQQPX |
| ORWORR AGET | AGET | ORWORR |
| ORWORR GET4LIST | GET4V11 | ORWORR |
| ORWRP REPORT TEXT | RPT | ORWRP |
| SC LISTER | LISTC | SCUTBK |
| TIU CREATE RECORD | MAKE | TIUSRVP |
| VPS FULLSSN | FULLSSN | VPSRPC5 |

## VPS\*1.0\*15 AVS Java Classes

VPS AVS Java classes are provided in a Java Enterprise Archive (EAR) file, ll-avs-1.3.ear stored in the JBoss server deploy directory. This EAR file contains file ll-avs-service-1.3.jar which provides the VPS AVS models, service and data access objects along with supporting utilities.

### Data Access Objects

Data access objects (DAOs) provide the interface to query the VPS AVS SQL Clinical database. Following is a list of the DAOs included in VPS AVS.

| **Java Class** | **Object** |
| --- | --- |
| ClinicPrefsDao | Clinic preference data access object |
| EncounterCacheDao | Encounter cache data access object |
| EncounterDao | Encounter data access object |
| EncounterProviderDao | EncounterProvider data access object |
| FacilityHealthFactorsDao | Facility Health Factors data access object |
| FacilityPrefsDao | Facility preferences data access object |
| LanguageDao | Language data access object |
| MedDescriptionDao | Medical description data access object |
| ProviderPrefsDao | Provider preference data access object |
| PvsClinicalRemindersDao | Clinical Reminder preference data access object. |
| PvsClinicDao | Clinic data access object |
| PvsPrintLogDao | Print log data access object |
| ServersDao | Servers data access object |
| ServiceDao | Service data access object |
| StringResourcesDao | String resources data access object |
| TranslationDao | Translation data access object |
| UsageLogDao | Clinic preference data access object |
| VhaSitesDao | Clinic preference data access object |

# Exported Options

There are no VistA M Server options exported with VPS build. However, VPS 4, 5, 3 build requires the VPS KIOSK INTERFACE context (option menu) and VPS\*1.0\*15 requires the VPS AVS INTERFACE.

# Archiving and Purging

## Archiving

There are no archiving procedures needed for VPS RPC components. Archiving of the VPS AVS Microsoft SQL database is the responsibility of the CBO business owner.

## Purging

### Purging JBoss and Samba Logs

All VPS AVS purging activities are performed weekly during the regularly scheduled maintenance period for the VPS AVS application. Purging is for the following:

* VPS AVS implements a Linux Command-Run-On (CRON) job to purge AVS generated temporary images stored in the ExportedImages directory of the VPS AVS Hyper Text Transfer Protocol Daemon (HTTPD) server’s htdocs/avs/ExportedImages directory.
* VPS AVS implements a CRON job to purge JBoss boot and server logs stored in the server/all/log, server/default/log, and server/node1/log directories.

The following cron file entries are configured for VPS AVS:

**00 00 \* \* 7 /home/jboss/cronjobs/clearlogs.sh**

**00 00 \* \* 1,4,7 /home/jboss/cronjobs/clearimages.sh**

The clearlogs.sh script is executed each Monday, Thursday and Sunday at midnight to delete temporary imaging files in Exported Images directory (htdocs/avs/ExportedImages).

The clearimages.sh is executed each Monday, Thursday and Sunday at midnight to delete JBoss log files in the JBoss /log directories (server/all/log, server/default/log, and server/node1/log directories ).

# Callable Routines

VPS does not provide VistA M Server callable routines.

The VPS\*1.0\*15 AVS J2EE component provides a web client interface used through the CPRS GUI Chart application. See section 2.7 for configuration information. To access VPS AVS using the web client, end users log into CPRS using their VistA access and verify codes.

VPS AVS provides a web service interface to consuming applications. The web service interface provides a connector proxy user login to allow generated .PDF files to be viewed and/or printed to secure printers by a Veteran.

# External Interfaces

There are no interfaces to VPS VistA routines and RPCs, other than those provided by the VPS web client, VistA M Server and VistA RPC Broker.

# External Relations

The following minimum package versions are required:

* VA FileMan V. 22.0,
* Kernel V. 8.0,
* Kernel Toolkit V. 7.3,
* CPRS V. 30,
* PXRM V. 2.0.18,
* RPC Broker V. 1.1
* VPS\*1.0\*2

Sites should verify that all patches to these packages have been installed.

# Internal Relations

The AVS web client includes an embedded web browser. When the embedded web browser application is launched, then the AVS servers will send HTML, images, Javascript, and Javascript object notation (JSON) pages back to the embedded web client browser for display.

The following third party/open source products are included in the VPS AVS J2EE component:

Java SE JDK 7

Apache HTTP Server

Samba

Fusion Charts

Krames support

JBoss Application Server

# DBIA Agreements

The VistA Database Administrator (DBA) maintains a list of Integration Agreements (IAs) or mutual agreements between custodial owners allows the use of internal entry points or other software-specific features that are not open for unrestricted use.

## DBIA Agreements – Custodial Package

1. Sign on to **FORUM** system
2. Go to the **DBA** Menu
3. Select the **Integration Control Registrations Menu** option
4. Select the **Custodial Package Menu** option
5. Choose the **Active ICRS by Custodial Package** Option
6. When prompted for a package, enter  ***VA Point of Service (Kiosks)***
7. All current IAs to which VA Point of Service (Kiosks) is custodian are listed.

VPS has no custodial Integration Agreements.

## DBIA Agreements – Subscriber Package

1. Sign on to the **FORUM** system
2. Go to the **DBA** Menu
3. Select the **Integration Control Registrations Menu** option
4. Select the **Subscriber Package Menu** option
5. Select the **Print ALL by Subscriber Package** Option
6. When prompted with “Select PACKAGE NAME,” enter ***VA Point of Service (Kiosks)***
7. When prompted with “START WITH SUBSCRIBING PACKAGE,” ENTER ***VA Point of Service (Kiosks)***
8. All current IAs to which VPS VA Point of Service (Kiosks) is a subscriber are listed

# Package-wide Variables

There are no package-wide variable associated with VPS.

# SAC Exemptions

There are no SAC Exemptions for VPS build.

# Software Product Security

## Security Management

No security keys required for used of VPS.

## Mail Groups and Alerts

There are no mail groups or alerts provided in VPS build.

## Remote Systems

### Connections

There are no direct remote system connections to the VPS. Access to the VPSd run routines is provided through the VistA RPC Broker and the underlying VistA M Server.

### Remote Data Views

Remote Data views are not supported by the VPS.

## Interfaces

There are no non-VA products embedded in or required by VPS build, other than those proved by the underlying operating system and VistA RPC Broker.

## Electronic Signatures

There are no electronic signatures used or required by VPS build.

## Security Keys

No security keys are exported with the VPS build.

## File Security

VPS is the custodial owner of the following VistA files:

* VPS AVS LAB CHARTING MAPPING #853.25
* VPS MRAR PDO #853.5
* VPS MED DISCREPANCY INDICATORS (#853.7)
* VPS CONFIG HISTORY (#853)
* VPS ALLERGY DISCREPANCY INDICATORS (#853.3)
* VPS CLINICAL SURVEY (#853.8)
* VPS QUESTIONNAIRE IDENTIFIERS (#853.85)
* VPS QUESTIONNAIRE NAME (#853.875)
* VPS APPOINTMENT QUEUE (#853.9)
* VPS HL7 SITE PARAMETERS (#853.1)

## Official Policies

VPS complies with the Software Engineering Process Group/Software Quality Assurance (SEPG/SQA) Standard Operating Procedure (SOP) 192-039—Interface Control Registration and Approval (effective 01/29/01) and has not altered any HealtheVet VistA Class I software code.

# Acronyms and Glossary

## Acronyms

Table : List of Acronyms

| Term | Definition |
| --- | --- |
| AVS | After Visit Summary |
| BR | Business rule |
| CBO | Chief Business Office |
| CCOW | Clinical Context Object Workgroup |
| CPRS | Computerized Patient Record System |
| DFN | Data file number |
| HIPAA | Health Insurance Portability and Accountability Act |
| DBIA | Database Integration Agreement |
| IB | Integrated Billing |
| ICR | Integration Control Registrations |
| IEN | Internal entry number |
| GUI | Graphical user interface |
| MUMPS/M | Massachusetts General Hospital Utility Multi-Programming System |
| NSR | New Service Request |
| OED | Office of Enterprise Development |
| PIMS | Patient Information Management System |
| PMO | Program Management Office |
| POS | Point of Service |
| RESTful | Representational State Transfer |
| PPOC | Print at Point of Collection |
| RPC | Remote Procedure Call |
| RSD | Requirements Specification Document |
| SACC | Standards and Conventions Committee |
| SSOi | Single Sign On and Patient Context Management |
| TCP/IP | Transmission Control Protocol/Internet Protocol |
| VistA | Veteran’s Health Information Systems and Technology Architecture |
| VISN | Veterans Integrated Service Network |
| VHA | Veterans Health Administration |
| VPS | Veterans Point Of Service |
| VSS | Voluntary Service System |

### Glossary

Table : Glossary

| Term | Definition |
| --- | --- |
| Access Code | The unique sequence of characters assigned to the user by the site system manger. The access code in conjunction with the verify code is used to identify authorized users. |
| Application | A collection of computer programs and files developed specifically to meet the requirements of a user or group of users. |
| Archive | The process of moving data that is no longer actively used to a separate storage for long-term retention. |
| Computerized Patient Record System (CPRS) | A suite of clinical applications in VistA that provide access to a patient’s Electronic Medical Record (EMR). |
| E-VPS | The set of VistA patches implementing features identified by VHA Point of Service (Kiosks) Phase II Enhancement VPS\*1.0\*4. |
| Field | A data element in a file. |
| FileMan | The VistA database manager. |
| Global | A collection of variables (fields) stored on disk that persist beyond routine or process completion. M VistA Server Globals are records stored in structured data files by M. |
| Kernel | A set of utilities that support data processing on VistA M Servers. |
| Kiosk | Implementation of a kiosk server at one TCP/IP domain. |
| M | Massachusetts (General Hospital) Utility Multi-Programming System, formerly known as MUMPS. |
| Option | Commands presented to a computer user by an applications. Typically, options are presented on a menu and have specific entry and exit actions. |
| Purge | The action/process of deleting a file or data from a file. |
| Procedure | A re-useable part of a computer program that performs a single function. |
| Required Field | A field which must have a data value entered by the user or passed as a parameter to computer program or subroutine. |
| Reminder Definition | Pre-defined sets of findings used to identify patients that should receive tests or treatments specific to diagnosed patient conditions. Reminder definitions specify criteria such as diagnoses, procedures, health factors, medications, or demographic variables used to identify affected patients. |
| RPC | Remote Procedure Call is an inter-process communication protocol that allows invocation of a program subroutine or procedure to execute in shared network space. |
| Routine | A set of commands and arguments related, stored and executed as a single M program. |
| Security Key | A keyword which makes specific options accessible to an authorized user. |
| Remote Procedure | A remote procedure is a procedure that can be executed by another program executing on a remote computer or another program process area. |
| Verify Code | A unique code which server as a second level of user authentication for accessing a VistA M Server. |
| VetLink | The VPS Kiosk application composed of a kiosk client used by VA patients and staff to connect to a kiosk server. |