

# **VistA System Monitor (VSM) 4.0**

## **Technical Manual**



**January 2024**

**Department of Veterans Affairs (VA)**  
**Office of Information and Technology (OIT)**  
**Software Product Management (SPM)**  
**Capacity and Performance Engineering (CPE)**

## Revision History

Date	Revision	Description	Author
01/22/2024	1.3	<p>Updates for Patch KMP*4.0*4:</p> <ul style="list-style-type: none"> <li>Updated <a href="#">Figure 1</a>.</li> <li>Updated <a href="#">Table 2</a>: <ul style="list-style-type: none"> <li>Changed Field #1.05 in File #8969 from TASKMAN SCHEDULE FREQUENCY to <a href="#">HTTP REQUEST MAX LENGTH</a>.</li> <li>Changed Field #1.06 in File #8969 from TASKMAN SCHEDULE START to <a href="#">MONITOR START DELAY</a>.</li> </ul> </li> <li>Updated <a href="#">Table 5</a>: <ul style="list-style-type: none"> <li>Moved the <b>SETRETRY</b> and <b>DBTIMCHK</b> entries.</li> <li>Removed the <b>RERROR</b> entry.</li> </ul> </li> <li>Updated <a href="#">Table 6</a>, <a href="#">Table 7</a>, <a href="#">Table 8</a>, <a href="#">Table 9</a>, <a href="#">Table 10</a>, and <a href="#">Table 11</a>: <ul style="list-style-type: none"> <li>Moved the <b>SETRETRY</b> entry.</li> <li>Removed the <b>RERROR</b> entry.</li> </ul> </li> <li>Updated <a href="#">Table 12</a>: <ul style="list-style-type: none"> <li>Moved <b>KMPWEB</b> tag in the <a href="#">KMPVRUN</a> routine.</li> <li>Deleted the <b>PERFCHK</b> tag from the <a href="#">KMPVRUN</a> routine.</li> <li>Added <b>PACKAGES</b> tag to the <a href="#">KMPUTLW</a> routine.</li> </ul> </li> <li>Updated <a href="#">Table 13</a>: Added the <b>/StartMonitor</b> and <b>/GetRetryData</b> URL paths.</li> <li>Section <a href="#">10.2</a>: Updated fourth and last bullet under “Data transmissions” list.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity and Performance Engineering (CPE) Development Team</li> <li>VistA Infrastructure Shared Services (VISS) Tech Writer</li> </ul>
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Date	Revision	Description	Author
		<ul style="list-style-type: none"> <li>Edited monitor text to reflect no longer using TaskMan: <ul style="list-style-type: none"> <li>Step 3 in Sections <a href="#">1.1.1.1</a>, <a href="#">1.1.1.2</a>, <a href="#">1.2.1.1</a>, <a href="#">1.2.1.2</a>, <a href="#">1.3.1.1</a>, <a href="#">1.3.1.2</a>, <a href="#">1.4.1.1</a>, <a href="#">1.4.1.2</a>, <a href="#">1.5.1.1</a>, <a href="#">1.5.1.2</a>, <a href="#">1.6.1.1</a>, <a href="#">1.6.1.2</a>, <a href="#">1.7.1.1</a>, and <a href="#">1.7.1.2</a>.</li> </ul> </li> <li>Updated Sections <a href="#">1.1.3</a>, <a href="#">1.2.3</a>, <a href="#">1.3.3</a>, <a href="#">1.4.3</a>, <a href="#">1.5.3</a>, <a href="#">1.6.3</a>, and, <a href="#">1.7.3</a> to better depict the metric transmission process</li> <li>Updated <a href="#">Table 2</a>: Added Note to <b>TASKMAN SCHEDULE FREQUENCY</b>, <b>TASKMAN SCHEDULE START</b>, and <b>TASKMAN OPTION</b> entries.</li> <li>Updated <a href="#">Table 5</a>: Added <b>SETRETRY</b> and <b>DBTIMCHK</b> entries.</li> <li>Updated <a href="#">Table 6</a>, <a href="#">Table 7</a>, <a href="#">Table 8</a>, <a href="#">Table 9</a>, <a href="#">Table 10</a>, and <a href="#">Table 11</a>: Added <b>SETRETRY</b> entry.</li> <li>Updated <a href="#">Table 12</a>: Deleted the tags from routines: <ul style="list-style-type: none"> <li><b>KMPVCBG</b>: <ul style="list-style-type: none"> <li><b>STOPJOB(KMPVMKEY)</b></li> <li><b>DUPEJOB(KMPMKEY)</b></li> </ul> </li> <li><b>KMPUTLW</b>: <ul style="list-style-type: none"> <li><b>PACKAGES</b></li> <li><b>KMPSSL</b></li> </ul> </li> <li><b>KMPSYNTH</b>: <b>KMPSSL</b></li> <li>Deleted routines: <b>KMPPST3</b>, <b>KMPPST3A</b>, and <b>KMPPST3B</b>.</li> <li>Updated <b>ERREXIT</b> entry in the <b>KMPVRUN</b> routine.</li> </ul> </li> <li>Updated Section <a href="#">8.3.3</a>: <a href="#">Figure 21</a>.</li> </ul>	
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Date	Revision	Description	Author
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## Orientation

### How to Use this Manual

The purpose of this guide is to provide instructions for use and maintenance of the Veterans Health Information Systems and Technology Architecture (VistA) Capacity and Performance Engineering (CPE) VistA System Monitor (VSM) 4.0 software, which is the **third** iteration of data collected as the overall capability has progressed.

Throughout this manual, advice and instructions are offered regarding the use of the VSM software and the functionality it provides for VistA software products.

### Intended Audience

The intended audience of this manual is the following stakeholders:

- **Software Product Management (SPM)**—System engineers and Capacity Management personnel responsible for enterprise capacity planning and system architecture.
- **System Administrators**—System administrators and Capacity Management personnel at local and regional Department of Veterans Affairs (VA) sites who are responsible for computer management and system security on the VistA M Servers.
- **SPM Developers**—VistA legacy development teams.
- **Product Support (PS).**

### Disclaimers

#### Software Disclaimer

This software was developed at the Department of Veterans Affairs (VA) by employees of the Federal Government in the course of their official duties. Pursuant to title 17 Section 105 of the United States Code this software is *not* subject to copyright protection and is in the public domain. VA assumes no responsibility whatsoever for its use by other parties, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic. We would appreciate acknowledgement if the software is used. This software can be redistributed and/or modified freely provided that any derivative works bear some notice that they are derived from it, and any modified versions bear some notice that they have been modified.

#### Documentation Disclaimer

This manual provides an overall explanation of using the VistA System Monitor (VSM) 4.0 software which is the **third** iteration of data collected as the overall capability has progressed; however, no attempt is made to explain how the overall VistA programming system is integrated and maintained. Such methods and procedures are documented elsewhere. We suggest you look at the various VA Internet and Intranet SharePoint sites and websites for a general orientation to VistA. For example, visit the Office of Information and Technology (OIT) Software Product Management (SPM) Intranet website.



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

## Documentation Conventions

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

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

**Table 1: Documentation Symbol Descriptions**

Symbol	Description
	<b>NOTE / REF:</b> Used to inform the reader of general information including references to additional reading material.
	<b>CAUTION / RECOMMENDATION / DISCLAIMER:</b> Used to caution the reader to take special notice of critical information.

- Descriptive text is presented in a proportional font (as represented by this font).
- Conventions for displaying TEST data in this document are as follows:
  - The first three digits (prefix) of any Social Security Numbers (SSN) begin with either “000” or “666”.
  - Patient and user names are formatted as follows:
    - *<APPLICATION NAME/ABBREVIATION/NAMESPACE>PATIENT,<N>*
    - *<APPLICATION NAME/ABBREVIATION/NAMESPACE>USER,<N>*

Where “*<APPLICATION NAME/ABBREVIATION/NAMESPACE>*” is defined in the Approved Application Abbreviations document and “*<N>*” represents the first name as a number spelled out or as a number value and incremented with each new entry.

For example, in VSM (KMP) test patient and user names would be documented as follows:

- KMPVPATIENT,ONE or KMPVUSER,ONE
  - KMPVPATIENT,TWO or KMPVUSER,TWO
  - KMPVPATIENT,THREE or KMPVUSER,THREE
  - KMPVPATIENT,14 or KMPVUSER,14
  - Etc.
- “Snapshots” of computer online displays (i.e., screen captures/dialogues) and computer source code is shown in a *non*-proportional font and may be enclosed within a box.
    - User’s responses to online prompts are **bold** typeface and highlighted in yellow (e.g., **<Enter>**). The following example is a screen capture of computer dialogue, and indicates that the user should enter two question marks:

Select Primary Menu option: **??**

- Emphasis within a dialogue box is **bold** typeface and highlighted in blue (e.g., **STANDARD LISTENER: RUNNING**).
- Some software code reserved/key words are **bold** typeface with alternate color font.
- References to “**<Enter>**” within these snapshots indicate that the user should press the **Enter** key on the keyboard. Other special keys are represented within < > angle brackets. For example, pressing the **PF1** key can be represented as pressing **<PF1>**.
- Author’s comments are displayed in italics or as “callout” boxes.



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

- This manual refers to the M programming language. 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. This manual uses the name M.
- All uppercase is reserved for the representation of M code, variable names, or the formal name of options, field/file names, and security keys (e.g., the XUPROGMODE security key).



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

## Documentation Navigation

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

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

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



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

## How to Obtain Technical Information Online

Exported VistA M Server-based software file, routine, and global documentation can be generated using Kernel, MailMan, and VA FileMan utilities.



**NOTE:** Methods of obtaining specific technical information online is indicated where applicable under the appropriate section.

## Help at Prompts

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

## Obtaining Data Dictionary Listings

Technical information about VistA M Server-based files and the fields in files is stored in data dictionaries (DD). You can use the **List File Attributes** [DILIST] option on the **Data Dictionary Utilities** [DI DDU] menu in VA FileMan to print formatted data dictionaries.



**REF:** For details about obtaining data dictionaries and about the formats available, see the “List File Attributes” section in the “File Management” section in the *VA FileMan Advanced User Manual*.

## Assumptions

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

- VistA computing environment:
  - Kernel—VistA M Server software
  - VA FileMan data structures and terminology—VistA M Server software
- Microsoft® Windows environment
- M programming language

## Reference Materials

Readers who wish to learn more about VSM should consult the following:

- *VistA System Monitor (VSM) Deployment, Installation, Back-Out, and Rollback Guide (DIBRG)*
- *VistA System Monitor (VSM) User Manual*
- *VistA System Monitor (VSM) Technical Manual* (this manual)
- Capacity and Performance Engineering (CPE) website (for more information on CPE services).

This site contains other information and provides links to additional documentation.

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

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

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



**REF:** See the [VistA System Monitor \(VSM\) manuals on the VDL](#).

Unredacted versions of the VistA documentation and software can be downloaded from the Product Support (PS) Network File Share (NFS) (formerly known as the “Anonymous Directories).

# 1 Process Overview

The Veterans Health Information Systems and Technology Architecture (VistA) System Monitor (VSM) 4.0 software is intended to collect Caché and VistA metrics related to system capacity and business usage. The package is made up of multiple collectors. The following seven collectors are deployed:

- [\*\*VistA Timed Collection Monitor \(VTCM\)\*\*](#)—Collects Caché metrics at regularly scheduled intervals such that they can be used in conjunction with metrics gathered via other deployed collection tools.
- [\*\*VistA Message Count Monitor \(VMCM\)\*\*](#)—Collects inbound and outbound Health Level Seven (HL7) and HL7 Optimized (HLO) message counts per logical link at regularly scheduled intervals.
- [\*\*VistA HL7 Monitor \(VHLM\)\*\*](#)—Collects metadata about HL7 messages (SYNC and ASYNC) as well as HLO messages at regularly scheduled intervals.
- [\*\*VistA Storage Monitor \(VSTM\)\*\*](#)—Collects storage metrics for each database twice monthly. This now includes the size of each global and information regarding the “0” node of each VistA file.
- [\*\*VistA Business Event Monitor \(VBEM\)\*\*](#)—Collects Caché metrics for VistA functions (Menu Options, TaskMan Jobs and Remote Procedure Calls).
- [\*\*VistA Coversheet Monitor \(VCSM\)\*\*](#)—Collects timing and metadata for CPRS coversheet loads at regularly scheduled intervals.
- [\*\*VistA Error Trap Monitor \(VETM\)\*\*](#)—Collects data from the sites Kernel Error Trap, ERROR LOG (#3.075) file, at regularly scheduled intervals.

This data is used for understanding VistA systems as they relate to the infrastructure on which they are deployed.

As a general rule, any VSM monitor follows the following process (specifics for any monitor are listed below separately):

1. Metrics are either collected on a periodic basis or aggregated to a similar time period. This allows metrics to be used in conjunction with those from other tools already being used within the VA.
2. Metrics are transferred from the VistA sites to the VSM national database via HyperText Transport Protocol (HTTP) or HyperText Transport Protocol Secure (HTTPS) per the monitors collection interval.
3. A purge function is executed: At **12:01** each morning the Caché Task Manager runs the **KMPVRUN** routine. This routine is responsible for starting each individual monitor. Prior to starting each monitor, the **KMPVRUN** routine calls **PURGEDLY^KMPVCBG**. This line tag/routine deletes any data that is older than the number of days specified in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file for that monitor type.

In some cases, the collection routine may need to run on each separate node of a VistA system. This is accomplished via a task in the Caché Task Manager. The Caché Task Manager executes a routine each morning immediately after midnight. This routine looks at each monitor in the VSM CONFIGURATION (#8969) file. It first checks to see if the monitor's ONOFF (#.02) field value is set to **ON**. If so, it checks to see if the monitor has an entry in its CACHE DAILY TASK (#1.03) field. This field represents the name of the collection routine for a given monitor. If there is an entry in this field, then the Caché task executes the **RUN** line tag of this routine.

## 1.1 VistA Timed Collection Monitor (VTCM) Specific Process

### 1.1.1 VTCM Monitor—Starting and Stopping

#### 1.1.1.1 Starting VTCM Monitor

To start the **VTCM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VTCM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VTCM** entry.



**NOTE:** Collection of metrics does *not* commence until the next execute of the Caché Task Manager task.

#### 1.1.1.2 Stopping VTCM Monitor

To stop the **VTCM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VTCM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VTCM** entry.

The collector stops upon its next iteration as it checks the ONOFF (#.02) field value before each collection.



**NOTE:** If the collection job is stopped via the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, then metric collection does *not* restart until **12:01 AM** on the following day. If needed, collection can be started manually, but *must* be done on each separate node. To do this, enter the following at a programmer prompt on each node:

```
D RUN^KMPVVTCM
```



## 1.1.2 VTCM Metric Collection

VTCM metrics are collected via calls to the **%ZOSVKSD** routine from the **KMPTCMRT** routine. This routine reads values from the following API calls:

- **##class(SYS.Stats.Dashboard).Sample()**
- **##class(SYS.Stats.Routine).Sample()**
- **##class(%SYSTEM.Config.SharedMemoryHeap).GetUsageSummary()**
- **##class(%SYSTEM.Config.SharedMemoryHeap).FreeCount()**

These calls are executed on a periodic basis as specified by the **COLLECTION INTERVAL** (#1.02) field in the **VSM CONFIGURATION** (#8969) file entry for **VTCM**. The default value is every **five (5)** minutes.

Metrics are stored for the day in the **^KMPTMP**("KMPV", "VTCM" global by day (**\$H**), node and time slot.



**REF:** For details on file metrics, see Section [1.1.3](#).

The collection routine, **KMPVVTCM**, runs until the start of a new day (new **\$H** value) unless the **ONOFF** (#.02) field value is set to **OFF** via the **VSM MANAGEMENT** menu option. Upon the next iteration of the collection process, the monitor checks this value and quits if turned **OFF**. If the monitor is turned **OFF** and back **ON**, metric collection does *not* resume until the start of the next day when the Caché Task Manager starts that day's collection.

## 1.1.3 VTCM Metric Transmission

The following is the **VTCM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VTCM** metric transmission process completed (skip [Step 3](#)).

3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 1.2 VistA Message Count Monitor (VMCM) Specific Process

### 1.2.1 VMCM Monitor—Starting and Stopping

#### 1.2.1.1 Starting VMCM Monitor

To start the **VMCM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VMCM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VMCM** entry.



**NOTE:** Collection of metrics does *not* commence until the next execute of the Caché Task Manager task.

#### 1.2.1.2 Stopping VMCM Monitor

To stop the **VMCM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VMCM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VMCM** entry.

The collector stops upon its next iteration as it checks the ONOFF (#.02) field value before each collection.



**NOTE:** If the collection job is stopped via the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option then metric collection does *not* restart until **12:01 AM** on the following day. If needed, collection can be started manually. To do this, enter the following at a programmer prompt on the **back-end** node:

**D RUN^KMPVVMCM**

## 1.2.2 VMCM Metric Collection

**VMCM** metrics are collected via the routine **KMPMCMRT**. This routine reads values from the **^HLCS** global. It iterates through the HL7 logical links and records messages received, messages processed, message to send and messages sent. Also, it looks at the **^HLSTATS** global to get HLO messages sent and received.

These calls are executed on a periodic basis as specified by the **COLLECTION INTERVAL** (#1.02) field in the **VSM CONFIGURATION** (#8969) file entry for **VMCM**. The default value is every **15** minutes.

Metrics are transmitted to the national database after each collection via an HTTP message.



**REF:** For details on file metrics, see Section [1.2.3](#).

The collection routine, **KMPMCMRT**, runs until the start of a new day (new **\$H** value) unless the **ONOFF** (#.02) field value is set to **OFF** via the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option. Upon the next iteration of the collection process, the monitor checks this value and quits if turned **OFF**. If the monitor is turned **OFF** and back **ON**, metric collection does *not* resume until the start of the next day when the Caché Task Manager starts that day's collection.

## 1.2.3 VMCM Metric Transmission

The following is the **VMCM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VMCM** metric transmission process completed (skip [Step 3](#)).

3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 1.3 VistA HL7 Monitor (VHLM) Specific Process

### 1.3.1 VHLM Monitor—Starting and Stopping

#### 1.3.1.1 Starting VHLM Monitor

To start the **VHLM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VHLM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VHLM** entry.



**NOTE:** Collection of metrics from the previous day will begin at the next scheduled TaskMan run.

#### 1.3.1.2 Stopping VHLM Monitor

To stop the **VHLM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VHLM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VHLM** entry.

### 1.3.2 VHLM Metric Collection

**VHLM** metrics are collected via the routine **KMPHLMRT**. This routine reads values from the following globals:

- HL7 Messages:
  - ^**HL**(772,
  - ^**HLMA**
- HLO Messages:
  - ^**HLA**
  - ^**HLB**

It extracts metadata from each HL7 and HLO message in those globals from the previous day. Metrics include the following:

- Total Number of Characters
- Sending Application
- Receiving Application
- Message Protocol

It does *not* collect any Personal Identifiable Information (PII)/ Personally-Identifiable Health Information (PHI) data.



**REF:** For details on file metrics, see Section [1.3.3](#).

The collection routine, **KMPHLMRT**, runs until the start of a new day (new **\$H** value) unless the ONOFF (#.02) field value is set to **OFF** via the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option. Upon the next iteration of the collection process, the monitor checks this value and quits if turned **OFF**. If the monitor is turned **OFF** and back **ON**, metric collection does *not* resume until the start of the next day when the Caché Task Manager starts that day's collection.

### 1.3.3 VHLM Metric Transmission

The following is the **VHLM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VHLM** metric transmission process completed (skip [Step 3](#)).
3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 1.4 VistA Storage Monitor (VSTM) Specific Process

### 1.4.1 VSTM Monitor—Starting and Stopping

#### 1.4.1.1 Starting VSTM Monitor

To start the **VSTM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VSTM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VSTM** entry.



**NOTE:** Collection of metrics does *not* commence until the next execute of the Caché Task Manager task.

### 1.4.1.2 Stopping VSTM Monitor

To stop the **VSTM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VSTM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VSTM** entry.

The collector stops upon its next iteration as it checks the ONOFF (#.02) field value before each collection.



**NOTE:** The **VSTM** collector runs on the 1<sup>st</sup> and the 15<sup>th</sup> of each month.

### 1.4.2 VSTM Metric Collection

**VSTM** metrics are collected via the **KMPSTMRT** routine. This routine executes a portion the **%FreeCnt** routine logic to collect storage metrics for each database. It calls the legacy Statistical Analysis of Global Growth (SAGG) software to get global sizes and “0” node data.



**REF:** For details on file metrics, see Section [1.4.3](#).

### 1.4.3 VSTM Metric Transmission

The following is the **VSTM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VSTM** metric transmission process completed (skip [Step 3](#)).
3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.

- c. Site purges the data.

## 1.5 VistA Business Event (VBEM) Specific Process

### 1.5.1 VBEM Monitor—Starting and Stopping

#### 1.5.1.1 Starting VBEM Monitor

To start the **VBEM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VBEM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VBEM** entry.



**NOTE:** The collection of **VBEM** metrics begins immediately.

#### 1.5.1.2 Stopping VBEM Monitor

To stop the **VBEM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VBEM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VBEM** entry.

The collector stops immediately.

### 1.5.2 VBEM Metric Collection

**VBEM** metrics are collected via the **KMPBEMRT** routine. This routine reads the following values on a periodic basis as specified by the COLLECTION INTERVAL (#1.02) field in the VSM CONFIGURATION (#8969) file entry for **VBEM**:

- **CPU**
- **Lines**
- **Commands**
- **GloRefs**

The default value is every **five (5)** minutes.





**REF:** For details on file metrics, see Section [1.5.3](#).

The metric collection starts/stops immediately based on the ON/OFF switch in the **VSM MANAGEMENT** menu option.

### 1.5.3 VBEM Metric Transmission

The following is the **VBEM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VBEM** metric transmission process completed (skip [Step 3](#)).
3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 1.6 VistA Coversheet Monitor (VCSM) Specific Process

### 1.6.1 VCSM Monitor—Starting and Stopping

#### 1.6.1.1 Starting VCSM Monitor

To start the **VCSM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STRT** action.
3. Choose **VCSM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VCSM** entry.



**NOTE:** The collection of **VCSM** metrics begins immediately.

### 1.6.1.2 Stopping VCSM Monitor

To stop the **VCSM** monitor, do the following:

1. Use the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option, which is located under the **Capacity Planning** [XTCM MAIN] menu.
2. Choose the **STOP** action.
3. Choose **VCSM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VCSM** entry.

The collector stops immediately.

## 1.6.2 VCSM Metric Collection

**VCSM** metrics are collected via the **KMPCSMRT** routine. This routine reads the following values on a periodic basis as specified by the COLLECTION INTERVAL (#1.02) field in the VSM CONFIGURATION (#8969) file entry for **VCSM**:

- Foreground Time
- Background Time
- Client Internet Protocol (IP) Address
- Patient Data File Number (DFN)<sup>1</sup>

The default value is every **five (5)** minutes.



**REF:** For details on file metrics, see Section 1.6.3.

The metric collection starts/stops immediately based on the ON/OFF switch in the **VSM MANAGEMENT** menu option.

## 1.6.3 VCSM Metric Transmission

The following is the **VCSM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VCSM** metric transmission process completed (skip [Step 3](#)).

---

<sup>1</sup> This is the IEN (.001 Field) in the PATIENT (#2) file.

3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 1.7 VistA Error Trap Monitor (VETM) Specific Process

### 1.7.1 VETM Monitor—Starting and Stopping

#### 1.7.1.1 Starting VETM Monitor

To start the **VETM** monitor, do the following:

1. Use the **VSM MANAGEMENT** menu option.
2. Choose the **STRT** action.
3. Choose **VETM** at the monitor prompt. This sets the ONOFF (#.02) field to **ON** in the VSM CONFIGURATION (#8969) file for the **VETM** entry.



**NOTE:** The collection of **VETM** metrics begins immediately.

#### 1.7.1.2 Stopping VETM Monitor

To stop the **VETM** monitor, do the following:

1. Use the **VSM MANAGEMENT [KMPV VSM MANAGEMENT]** option, which is located under the **Capacity Planning [XTCM MAIN]** menu.
2. Choose the **STOP** action.
3. Choose **VETM** at the monitor prompt. This sets the ONOFF (#.02) field to **OFF** in the VSM CONFIGURATION (#8969) file for the **VETM** entry.

The collector stops immediately.

## 1.7.2 VETM Metric Collection

**VETM** metrics are collected via the **KMPETMRT** routine. This routine reads the following values on a periodic basis as specified by the COLLECTION INTERVAL (#1.02) field in the VSM CONFIGURATION (#8969) file entry for **VETM**:

- Error
- Line
- Job Number
- Current IO

The default value is every **15** minutes.



**REF:** For details on file metrics, see Section 1.7.3.

## 1.7.3 VETM Metric Transmission

The following is the **VETM** metric transmission process:

1. Site transfers data to the CPE national database at each collection interval.
2. If CPE national database receives data, the following occurs:
  - a. CPE National server sends an acknowledgement to the site upon receipt of the data.
  - b. Site immediately deletes that data.
  - c. **VETM** metric transmission process completed (skip [Step 3](#)).
3. If CPE national database does *not* receive data, the following occurs:
  - a. Site stores the data on the VistA system until it reaches the value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file. This is set to **seven (7) days** by default.
  - b. Site repeats Steps [1-2](#) until either of the following occurs:
    - Data is successfully sent to the CPE national database.
    - System reaches the date value set in the DAYS TO KEEP DATA (#1.01) field in the VSM CONFIGURATION (#8969) file.
  - c. Site purges the data.

## 2 Files

This section lists the files associated with the VistA System Monitor (VSM) application. The files are:

- [VSM CONFIGURATION \(#8969\) File; Global: ^KMPV\(8969](#)
- [VSM MONITOR DEFAULTS \(#8969.02\) File; Global: ^KMPV\(8969.02 - Deprecated](#)
- [VSM CACHE TASK LOG \(#8969.03\) File; Global: ^KMPV\(8969.03](#)
- [^KMPTMP\(“KMPV”—Temporary Data Storage:](#)
  - [VTCM Usage of ^KMPTMP](#)
  - [VSTM Usage of ^KMPTMP](#)
  - [VMCM Usage of ^KMPTMP](#)
  - [VHLM Usage of ^KMPTMP \(SYNC/ASYNCR\)](#)
  - [VHLM Usage of ^KMPTMP \(HLO\)](#)
  - [VBEM Usage of ^KMPTMP](#)
  - [VCSM Usage of ^KMPTMP](#)
  - [VETM Usage of ^KMPTMP](#)

## 2.1 VSM CONFIGURATION (#8969) File; Global: ^KMPV(8969

### 2.1.1 Data Dictionary

Figure 1: VSM CONFIGURATION (#8969) File—Data Dictionary

```
STORED IN ^KMPV(8969, (7 ENTRIES) SITE: TEST.CENTRAL-TEXAS.MED.VA.GOV UCI:
XVT,ROU (VERSION 4.0)
```

-----  
This file contains current configuration data related to the daily operation of  
each monitor deployed.

CROSS

REFERENCED BY: MONITOR KEY(B)

```
^KMPV(8969,D0,0)= (#.01) MONITOR KEY [1F] ^ (#.02) ONOFF [2S] ^ (#.03) FULL
==>NAME [3F] ^ (#.04) VERSION [4N] ^ (#.05) VERSION INSTALL
==>DATE [5D] ^
^KMPV(8969,D0,1)= (#1.01) DAYS TO KEEP DATA [1N] ^ (#1.02) COLLECTION
==>INTERVAL [2N] ^ (#1.03) CACHE DAILY TASK [3F] ^ (#1.04)
==>ALLOW TEST SYSTEM [4S] ^ (#1.05) HTTP REQUEST MAX LENGTH
==>[5N] ^ (#1.06) MONITOR START DELAY [6N] ^ (#1.07) TASKMAN
==>OPTION [7F] ^ (#1.08) START PERFMON [8S] ^ (#1.09) ENCRYPT
==>[9S] ^
^KMPV(8969,D0,2)= (#2.01) LAST START TIME [1D] ^ (#2.02) LAST STOP TIME [2D]
==>^ (#2.03) LAST RUN TIME [3N] ^
^KMPV(8969,D0,3)= (#3.01) NATIONAL DATA EMAIL ADDRESS [1F] ^ (#3.02) NATIONAL
==>SUPPORT EMAIL ADDRESS [2F] ^ (#3.03) VSM CFG EMAIL ADDRESS
==>[3F] ^ (#3.04) LOCAL SUPPORT EMAIL ADDRESS [4F] ^
^KMPV(8969,D0,4)= (#4.01) NATIONAL IP ADDRESS [1F] ^ (#4.02) NATIONAL FQDN
==>[2F] ^ (#4.03) NATIONAL PORT [3N] ^ (#4.04) APIKEY [4F] ^
```

INPUT TEMPLATE(S) :

PRINT TEMPLATE(S) :

SORT TEMPLATE(S) :

FORM(S)/BLOCK(S) :

^DIST(.403,149)= KMPV EDIT CONFIGURATION

^DIST(.404,526)= KMPV EDIT CFG

^DIST(.404,529)= KMPV EDIT TITLE

^DIST(.403,150)= KMPV VIEW CONFIGURATION

^DIST(.404,527)= KMPV VIEW CFG

^DIST(.404,528)= KMPV VIEW TITLE

## 2.1.2 VSM CONFIGURATION (#8969) File—Field Descriptions

Table 2: VSM CONFIGURATION (#8969) File—Field Descriptions

Field Name	Field Number	Description
MONITOR KEY	8969, .01	<b>Four</b> Letter acronym used to identify specific monitor.
ONOFF	8969, .02	Flag used to stop or continue monitor collection.
FULL NAME	8969, .03	Descriptive name for specific monitor. Usually related to the Monitor Key. For example, <b>VTCM = VistA Timed Collection Monitor</b> .
VERSION	8969, .04	Current version of VSM software.
INSTALL DATE	8969, .05	Date current version of software was installed.
DAYS TO KEEP DATA	8969, 1.01	Number of days that unsent data is allowed to remain in <b>^KMPTMP</b> (“ <b>KMPV</b> ” before the purge routine kills it. Limited to <b>3-7 days</b> . Data older than this value is deleted; regardless of the reason it has <i>not</i> been sent to the national database, in order to assure global does <i>not</i> grow unchecked.
COLLECTION INTERVAL	8969, 1.02	The number in minutes used to gather or aggregate metrics. Monitors that collect metrics on a periodic basis use this value to wait between collections. Monitors that collect data continuously use this value for aggregation of metrics.
CACHE DAILY TASK	8969, 1.03	The name of the routine, if applicable, to start each day's collection. The Caché Task Manager calls the <b>RUN</b> line tag of this routine at the start of every day. This allows collection tasks to run on each node of a VistA system: <b>front-end</b> and <b>back-end</b> .
ALLOW TEST SYSTEM	8969, 1.04	If set to <b>YES</b> , this allows the monitors to run on test systems. Otherwise monitors exit if the current UCI is <i>not</i> set as <b>PROD</b> per <b>^%ZOSF</b> (“ <b>UCI</b> ”).
HTTP REQUEST MAX LENGTH	8969, 1.05	This number represents the maximum number of characters that can be sent in a single HTTP Request body.
MONITOR START DELAY	8969, 1.06	This number represents the maximum number of seconds to delay starting the VSM monitors. The purpose is to lower the arrival rate of HTTP messages at the receiving application.
TASKMAN OPTION	8969, 1.07	<b>Deprecated.</b> The OPTION (#19) file entry used by TaskMan to schedule the daily background jobs.

Field Name	Field Number	Description
START PERFMON	8969, 1.08	<p>The <a href="#">KMPVRUN</a> routine executes daily immediately after midnight:</p> <ul style="list-style-type: none"> <li>• If <b>START PERFMON</b> is set to <b>1</b>, then this routine attempts to start the Performance Monitor if it is <i>not</i> running.</li> <li>• If <b>START PERFMON</b> is set to <b>0</b>, this section of code is skipped.</li> </ul>
ENCRYPT	8969, 1.09	<ul style="list-style-type: none"> <li>• If set to <b>1 (YES)</b>, then VSM HTTP requests are sent using Secure Socket Layer (SSL)/Transport Layer Security (TLS) encryption (HTTPS).</li> <li>• If set to <b>0 (NO)</b>, then HTTP requests will be sent <i>without</i> SSL/TLS encryption (HTTP).</li> </ul>
LAST START TIME	8969, 2.01	<b>Deprecated.</b> Time last TaskMan task was started for a specific monitor.
LAST STOP TIME	8969, 2.02	<b>Deprecated.</b> Time last TaskMan task completed for a specific monitor.
LAST RUN TIME	8969, 2.03	<b>Deprecated.</b> Time in seconds from start to completion of most recent run for a specific monitor TaskMan task.
NATIONAL DATA EMAIL ADDRESS	8969, 3.01	<b>Deprecated.</b> Email address used to send metric data to the national Capacity and Performance Engineering (CPE) database.
NATIONAL SUPPORT EMAIL ADDRESS	8969, 3.02	Email address used to send messages to the CPE Vista CP mail group.
VSM CFG EMAIL ADDRESS	8969, 3.03	<b>Deprecated.</b> Email address used to send data other than daily metrics to CPE national database.
LOCAL SUPPORT EMAIL ADDRESS	8969, 3.04	Optional email address for local support personnel. If present, any email that would be sent to the national support group also goes to the local support group.
NATIONAL IP ADDRESS	8969, 4.01	This field holds the IP address of the national system receiving VSM metric data transmissions.
NATIONAL FQDN	8969, 4.02	This field holds the fully qualified domain name of the service receiving metric data from VSM.



Field Name	Field Number	Description
NATIONAL PORT	8969, 4.03	This field contains the port number of the national service receiving VSM metrics. This field is only used if the following ports are <i>not</i> to be used: <ul style="list-style-type: none"> <li>HTTP: Standard port &lt;REDACTED&gt;.</li> <li>HTTPS: Port &lt;REDACTED&gt;.</li> </ul>
API KEY	8969, 4.04	Header key for Amazon Web Services (AWS) API Gateway.

## 2.2 VSM MONITOR DEFAULTS (#8969.02) File; Global: ^KMPV(8969.02

### 2.2.1 Data Dictionary

Figure 2: VSM MONITOR DEFAULTS (#8969.02) File—Data Dictionary

CROSS REFERENCED BY: MONITOR KEY(B)
^KMPV(8969.02,D0,0)= (#.01) MONITOR KEY [1F] ^ (#.02) DAYS TO KEEP DATA [2N] ^ (#.03) COLLECTION INTERVAL [3N] ^ (#.04) CACHE DAILY TASK [4F] ^ (#.05) ALLOW TEST SYSTEM [5S] ^ (#.06) TASKMAN SCHEDULE FREQUENCY [6F] ^ (#.07) TASKMAN SCHEDULE START [7F] ^ (#.08) TASKMAN OPTION [8F] ^ KMPV(8969.02,D0,1)= (#1.01) NATIONAL DATA EMAIL ADDRESS [1F] ^ (#1.02) NATIONAL SUPPORT EMAIL ADDRESS [2F] ^ (#1.03) VSM CFG EMAIL ADDRESS [3F] ^

### 2.2.2 Field Descriptions

Table 3: VSM MONITOR DEFAULTS (#8969.02) File—Field Descriptions

Field Name	Field Number	Description
MONITOR KEY	8969.02, .01	<b>Two to four</b> letter acronyms used to identify specific monitor.
DAYS TO KEEP DATA	8969.02, .02	Number of days that unsent data is allowed to remain in ^KMPTMP(“KMPV” before the purge routine kills it. Limited to <b>3-7 days</b> . Data older than this value is deleted; regardless of the reason it has <i>not</i> been sent to the national database, in order to assure global does <i>not</i> grow unchecked.
COLLECTION INTERVAL	8969.02, .03	The number in minutes used to gather or aggregate metrics. Monitors that collect metrics on a periodic basis use this value to wait between collections. Monitors that

Field Name	Field Number	Description
		collect data continuously use this value for aggregation of metrics.
CACHE DAILY TASK	8969.02, .04	The name of the routine, if applicable, to start each day's collection. The Caché Task Manager calls the <b>RUN</b> line tag of this routine at the start of every day. This allows collection tasks to run on each node of a VistA system: <b>front-end</b> and <b>back-end</b> .
ALLOW TEST SYSTEM	8969.02, .05	If set to <b>YES</b> , this allows the monitors to run on test systems. Otherwise monitors exit if the current UCI is <i>not</i> set as <b>PROD</b> per <b>^%ZOSF("UCI")</b> .
TASKMAN SCHEDULE FREQUENCY	8969.02, .06	The value used to automatically reschedule the TaskMan tasks. (e.g., <b>1D</b> or <b>1W</b> ).
TASKMAN SCHEDULE START	8969.02, .07	The time each monitor's TaskMan task should be scheduled. (e.g., <b>T+1@0001</b> ).
TASKMAN OPTION	8969.02, .08	The OPTION (#19) file entry used by TaskMan to schedule the daily background jobs.
START PERFMON	8969.02, .09	The <b>KMPVRUN</b> routine executes daily immediately after midnight: <ul style="list-style-type: none"> <li>If <b>START PERFMON</b> is set to <b>1</b>, then this routine attempts to start the Performance Monitor if it is <i>not</i> running.</li> <li>If <b>START PERFMON</b> is set to <b>0</b>, this section of code is skipped.</li> </ul>
ENCRYPT	8969.02, .1	<ul style="list-style-type: none"> <li>If set to <b>1 (YES)</b>, then VSM HTTP requests are sent using SSL/TLS encryption (HTTPS).</li> <li>If set to <b>0 (NO)</b>, then HTTP requests are sent without SSL/TLS encryption (HTTP).</li> </ul>
NATIONAL DATA EMAIL ADDRESS	8969.02, 1.01	Email address used to send metric data to the national CPE database.
NATIONAL SUPPORT EMAIL ADDRESS	8969.02, 1.02	Email address used to send messages to the CPE VistA CP mail group.
VSM CFG EMAIL ADDRESS	8969.02, 1.03	Email address used to send data other than daily metrics to CPE national database.

Field Name	Field Number	Description
NATIONAL IP ADDRESS	8969.02, 2.01	This field holds the IP address of the national system receiving VSM metric data transmissions.
NATIONAL FQDN	8969.02, 2.02	This holds the fully qualified domain name of the service receiving metric data from VSM.
NATIONAL PORT	8969.02, 2.03	This contains the port number of the national service receiving VSM metrics. This field is only used if the following ports are <i>not</i> to be used: <ul style="list-style-type: none"> <li>HTTP: Standard port &lt;REDACTED&gt;.</li> <li>HTTPS: port &lt;REDACTED&gt;.</li> </ul>
API KEY	8969.02, 2.04	Header key for AWS API Gateway.

## 2.3 VSM CACHE TASK LOG (#8969.03) File; Global: ^KMPV(8969.03

### 2.3.1 Data Dictionary

Figure 3: VSM CACHE TASK LOG (#8969.03) File—Data Dictionary

```
CROSS REFERENCED BY: DATE (B)

INDEXED BY:      DATE & NODE (C)

^KMPV(8969.03,D0,0)= (#.01) DATE [1D] ^ (#.02) NODE [2F] ^ (#.03) VTCM RUNTIME [3D]
^
(#.04) VSTM RUNTIME [4D] ^ (#.05) VMCM RUNTIME [5D]
```

### 2.3.2 Field Descriptions

Table 4: VSM CACHE TASK LOG (#8969.03) File—Field Descriptions

Field Name	Field Number	Description
DATE	8969.03, .01	Run date for specific monitor as started from The Caché Task Manager.
NODE	8969.03, .02	Specific node on which collection routine was run.
VTCM RUNTIME	8969.03, .03	Time the <b>VistA Timed Collection Monitor (VTCM)</b> was started in VA FileMan date/time format.
VSTM RUNTIME	8969.03, .04	Time the <b>VistA Storage Monitor (VSTM)</b> was started in VA FileMan date/time format.

Field Name	Field Number	Description
VMCM RUNTIME	8969.03, .05	Time the <b>VistA Message Count Monitor (VMCM)</b> was started in VA FileMan date/time format.

## 2.4 ^KMPTMP(“KMPV”—Temporary Data Storage

^KMPTMP is a temporary global used by multiple KMP packages including KMPV – VistA System Monitor.



**CAUTION:** This global is *not* in VA FileMan format and should *not* be journaled.

The following sections document how the VSM monitors use this global.

### 2.4.1 VTCM Usage of ^KMPTMP

VTCM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “VTCM”, “TEMP”) holds metrics from the previous collection. These are used to determine the difference between the previous and current collections to provide metrics/second.
- ^KMPTMP (“KMPV”, “VTCM”, “RETRY”) holds JavaScript Object Notation (JSON) strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VTCM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

### 2.4.2 VSTM Usage of ^KMPTMP

VSTM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “VSTM”, “TRANSMIT”) temporarily collates collected data from transmission.
- ^KMPTMP (“KMPV”, “VSTM”, “RETRY”) holds JSON strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VSTM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

### 2.4.3 VMCM Usage of ^KMPTMP

VMCM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “VMCM”, “PREVIOUS”) holds metrics from the previous collection. This is used to find the number of messages per the current time period.
- ^KMPTMP (“KMPV”, “VMCM”, “TRANSMIT”) temporarily collates collected data from transmission.
- ^KMPTMP (“KMPV”, “VMCM”, “RETRY”) holds JSON strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VMCM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

### 2.4.4 VHLM Usage of ^KMPTMP (SYNC/ASync)

VHLM ^KMPTMP (SYNC/ASync) usage:

- ^KMPTMP (“KMPV”, “VHLM”, “TRANSMIT”) temporarily collates collected data from transmission.
- ^KMPTMP (“KMPV”, “VHLM”, “RETRY”) holds JSON strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VHLM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

### 2.4.5 VBEM Usage of ^KMPTMP

VBEM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “VBEM”, “DLy”) stores raw metrics as they are collected upon execution of:
  - Menu Options
  - RPC Calls
  - TaskMan Options
- ^KMPTMP (“KMPV”, “VBEM”, “COMPRESS”) aggregates metrics, removing the individual job numbers.
- ^KMPTMP (“KMPV”, “VBEM”, “TRANSMIT”) temporarily collates collected data from transmission.
- ^KMPTMP (“KMPV”, “VBEM”, “RETRY”) holds JSON strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VBEM DATA RETRANSMISSION** tasked option once a day up to the number

of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

## 2.4.6 VCSM Usage of ^KMPTMP

VCSM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “KMPDT”, “ORWCV”) backgrounds Coversheet Timings based on actual RPC events.
- ^KMPTMP (“KMPV”, “KMPDT”, “ORWCV-FT”) foregrounds Coversheet Timings based on actual RPC events.
- ^KMPTMP (“KMPV”, “VCSM”, “TRANSMIT”) temporarily collates collected data from transmission.
- ^KMPTMP (“KMPV”, “VCSM”, “RETRY”) holds JSON strings for messages sent to the national database that received no acknowledgement. It attempts to resend via the **KMPV VCSM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

## 2.4.7 VETM Usage of ^KMPTMP

VETM ^KMPTMP usage:

- ^KMPTMP (“KMPV”, “VETM”, “TEMP”) stores the last error number transmitted.
- ^KMPTMP (“KMPV”, “VETM”, “RETRY”) holds JSON strings for messages sent to the national database that received no Acknowledgement. It attempts to resend via the **KMPV VETM DATA RETRANSMISSION** tasked option once a day up to the number of days specified in the DAYS TO KEEP DATA (#1.01) configuration field in the VSM CONFIGURATION (#8969) file.

## 3 Routines

This section lists the routines and line tags for VistA System Monitor (VSM) monitors. The routines include:

- [VistA Timed Collection Monitor \(VTCM\) Specific Routine](#)
- [VistA Message Count Monitor \(VMCM\) Specific Routines](#)
- [VistA HL7 Monitor \(VHLM\) Specific Routines](#)
- [VistA Storage Monitor \(VSTM\) Specific Routine](#)
- [VistA Business Event Monitor \(VBEM\) Specific Routines](#)
- [VistA Coversheet Monitor \(VCSM\) Specific Routines](#)
- [VistA Error Trap Monitor \(VETM\) Specific Routines](#)
- [VSM Utility Routines](#)

### 3.1 VistA Timed Collection Monitor (VTCM) Specific Routine

Table 5: VTCM Routine

Routine	Line Tag	Description
KMPTCMRT		Collect Caché Metrics for the VistA Timed Collection Monitor.
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	DBTIMCHK	Calculates the delta in system time between the application servers and the database server.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

## 3.2 VistA Message Count Monitor (VMCM) Specific Routine

Table 6: VMCM Routine

Routine	Line Tag	Description
KMPMCMRT		Collect message metrics for the VistA Message Count Monitor.
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	HLODAILY	Collect HLO metrics.
	CALCDELTA	Calculate the delta between the previous and current collections.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

## 3.3 VistA HL7 Monitor (VHLM) Specific Routine

Table 7: VHLM Routine

Routine	Line Tag	Description
KMPHLMRT		Collect HL7/HLO metrics for the VistA HL7 Monitor.
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.



### 3.4 VistA Storage Monitor (VSTM) Specific Routine

Table 8: VSTM Routine

Routine	Line Tag	Description
KMPSTMRT		Collect storage metrics for the VistA Storage Monitor.
	RUN	Entry point. Calls the STORAGE, ZERONODE, <i>and</i> GLOBALS line tags.
	STORAGE	Collects storage metrics and sends to the national database via an HTTP request.
	ZERONODE	Collects <b>zero</b> node metrics and sends to the national database via an HTTP request.
	GLOBALS	Collects global size metrics and sends to the national database via an HTTP request.
	CALC	Converts storage metrics to MB or GB.
	GETDB	Configuration specific information based on operating system.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

### 3.5 VistA Business Event Monitor (VBEM) Specific Routine

Table 9: VBEM Routine

Routine	Line Tag	Description
KMPBEMRT		Collect event metrics for the VistA Business Event Monitor.
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.

Routine	Line Tag	Description
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

### 3.6 VistA Coversheet Monitor (VCSM) Specific Routine

Table 10: VCSM Routine

Routine	Line Tag	Description
<b>KMPCSMRT</b>		<b>Collect coversheet load metrics for the VistA Coversheet Monitor.</b>
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	ORONE	Collates metrics if coversheets only run in foreground or background.
	ORBOTH	Collates metrics if coversheets run in both foreground and background.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

### 3.7 VistA Error Trap Monitor (VETM) Specific Routine

Table 11: VETM Routine

Routine	Line Tag	Description
<b>KMPETMRT</b>		<b>Collect error metrics for the VistA Error Trap Monitor.</b>
	RUN	Entry point: Manages configuration and kicks off individual collections.
	COLLECT	Collect metrics and send to national database via HTTP requests.
	SETRETRY	Attempts to save data for retry the next morning. Captures errors, such as <b>String Too Long</b> , and sends alerts.

Routine	Line Tag	Description
	RETRY	Transmit data that was <i>not</i> successfully sent on previous attempts.

## 3.8 VSM Utility Routines

Table 12: VSM Utility Routines

Routine	Line Tag	Description
<b>KMPVCCFG</b>		<b>VSM Configuration Functions.</b>
	CFGARR(KMPVMKEY,KMPVCFG, KMPVFLAG)	Return configuration by monitor in array.
	GETDEF(KMPVMKEY,KMPVDEF, KMPVFLAG)	Return default configuration in array.
	CFGSTR(KMPVMKEY,KMPVFLAG)	Return configuration in ^-delimited string.
	GETVAL(KMPVMKEY,KMPVFLD, KMPVFILE,KMPVFLAG)	Retrieve value from VSM CONFIGURATION (#8969) or VSM MONITOR DEFAULTS (#8969.02) files.
	SETONE(KMPVMKEY,KMPVFNAM,KMPVNVAL,KMPVERR,KMPVLOG)	Set a value into the VSM CONFIGURATION (#8969) file.
	SETVALS(KMPVMKEY,KMPVFVAL, KMPVERR,KMPVLOG)	Set multiple values into the VSM CONFIGURATION (#8969) file.
	RESTCFG(KMPVMKEY)	Restore default configuration to VSM CONFIGURATION (#8969) file.
	STRSTP(KMPVMKEY,KMPVSTIME)	Record run time values.
	SYSCFG()	Return system configuration values.
	MONSTAT(KMPVTEXT)	Return status information for all configured monitors.
	USERNAME(KMPVDUZ)	Return users name from <b>DUZ</b> .
	PROD()	Return “ <b>Prod</b> ” if production; otherwise, return “ <b>Test</b> ”.
	SITEINFO	Returns the site’s name, domain, sitecode, and Production status.

Routine	Line Tag	Description
	SLOT(KMPTIME, KMPSINT, KMPTFORM)	Determines the time “slot” based on how the monitor is configured.
	ISBENODE(KMPNODE)	Determines if the current node is a “ <b>back-end</b> ” or “ <b>front-end</b> ”.
<b>KMPVCBG</b>		<b>VSM Background Utility Functions.</b>
	MONLIST(KMPVML)	Return list of configured monitors.
	STARTALL	Starts up all monitors – called by <b>ZSTU</b> .
	STOPALL	Stops all monitors.
	ALLOW(KMPVMKEY)	Sets the value for <b>ALLOW TEST</b> for a given monitor.
	STARTMON(KMPVMKEY)	Schedule transmission task in TaskMan and set ONOFF (#.02) field to <b>ON</b> .
	STOPMON(KMPVMKEY)	Un-schedule transmission task in TaskMan and set ONOFF (#.02) field to <b>OFF</b> .
	RESCH(KMPVMKEY, KMPVERR)	Reschedule transmission task in TaskMan.
	DESCH(KMPVMKEY, KMPVERR)	De-schedule transmission task in TaskMan.
	PURGEDLY(KMPVMKEY)	Purge any data older than VSM CONFIGURATION (#8969) file specifies.
	KMPVTSK	For legacy compatibility – calls TASK^KMPTASK.
	ROUTCHK(KMPROUT)	Determines if a routine is running.
	CANMESS(MTYPE, KMPVMKEY, KMPVSITE, KMPVD)	Repeatable, configured mail messages.
	SUPMSG(KMPVTEXT)	Send email to national and local support mail groups.
	DBAMSG(KMPVTEXT)	Send email to local support mail group.
	CFGMSG(KMPVRQNAM)	Send configuration data to update Location Table at National VSM Database.
<b>KMPVLM</b>		<b>List Manager Functions.</b>
	EN	Main entry point for VSM MANAGEMENT menu option.
	HDR	Header Code.
	INIT	Initialize variables and list array.

Routine	Line Tag	Description
	BUILD	Build array with collector status information.
	STARTMON	Supports List Manager protocol <b>STRT Start Monitor</b> .
	STOPMON	Supports List Manager protocol <b>STOP Stop Monitor</b> .
	TESTSYS	Allows the end user to change the value for ALLOW TEST SYSTEM.
	CONTACT	Displays the CPE VSM email group name.
	VIEWCFG	Supports List Manager protocol <b>VIEW View CFG</b> .
	EDITCFG	Supports List Manager protocol <b>EDIT Edit CFG</b> .
	RESCFG	Supports List Manager protocol <b>REST Restore CFG</b> .
	KILL(KMPVMKEY)	Supports List Manager protocol <b>DEL Delete Data</b> .
	PICKMON()	Supports selection of Monitor Type for List Manager functions.
	REFRESH	Refresh display.
	HELP	Help code.
	EXIT	Exit code.
	EXPND	Expand code.
<b>KMPVRUN</b>		<b>VSM Caché Task Manager Driver.</b>
	RUN	Loop VSM CONFIGURATION (#8969) file and run collection routine for monitors set to <b>ON</b> .
	CLEANUP	Purge old data in VSM CACHE TASK LOG (#8969.03) file and release lock.
	KMPWEB	Creates SSL Configuration and Web Application classes if they do <i>not</i> exist.
	ERREXIT	Error trap to ensure routine returns from <b>%SYS</b> namespace.
	ZSTU	Called from <b>ZSTU</b> on startup. Checks that necessary classes exist and starts monitors on a failover event.

Routine	Line Tag	Description
<b>KMPUTLW</b>		<b>VSM Utility Routine.</b>
	POST	Sends the HTTP request to the national database.
	INFOMSG(KMPVTEXT)	Sends email to VSM support.
	CANMSG(MTYPE, KMPMKEY, KMPSITE, KMPD)	Sends pre-configured messages for specific cases.
	CFGMSG	Sends configuration data to the national database.
	RETRY	Executes the <b>RETRY</b> function of the specific monitors.
	CTMLOG	Sends the contents of the VSM CACHE TASK LOG (#8969.03) file.
	PACKAGES	Get data from the PACKAGE (#9.4) file.
	SITE	Creates the <b>SITE</b> section of the JSON configuration message.
	CPF	Creates the <b>CPF</b> section of the JSON configuration message.
	MON	Creates the <b>MONITOR</b> section of the JSON configuration message.
	TSTAMP(KMPDAY, KMPFORMAT, KMPTZ)	Formats an ODBC timestamp string.
	SHORTDATE	Formats an ODBC date string.
	UTC	Creates a timestamp in Linux UTC format.
	NODETYPE	Returns the type of node.
<b>KMPUTLW2</b>		<b>VSM Utility Routine.</b>
	EVTPKG(KMPOPT)	Returns the Event Name, Parent Event Name, Event Type, and Event Source.
	CALCEVT(KMPOPT)	Determines if the event is an RPC, Protocol, or Option.
	CALCPKG(KMPENAMEZ)	Determines the Package Name of the event.
	RESERVED(KMPENAME)	Determines if the event is part of the RPC Broker, VistALink Handler, TaskMan, or Menu Driver.
	RESPACK(KMPENAME)	Returns the package information for reserved packages.

Routine	Line Tag	Description
	SETCFG(KMPCFG)	Function to update the current configuration of a monitor.
	GETERR(KMPRET, KMPREQ)	Returns data from the Kernel Error Trap, ERROR LOG (#3.075) file.
<b>KMPTASK</b>		<b>VSM Utility Routine.</b>
	TASK(KMPVNSP)	Creates task in the Cache Task Manager. If it exists, it reports on status.
	SETRT	Manages requests to change real time status of monitors.
	VTCLMLEG	Sets values needed for legacy <b>VTCLM</b> .
	VTCLMRT	Sets values needed for real time <b>VTCLM</b> .
	VSTMLEG	Sets values needed for legacy <b>VSTM</b> .
	VSTMRT	Sets values needed for real time <b>VSTM</b> .
	VBEMLEG	Sets values needed for legacy <b>VBEM</b> .
	VBEMRT	Sets values needed for real time <b>VBEM</b> .
	VMCLMLEG	Sets values needed for legacy <b>VMCLM</b> .
	VMCLMRT	Sets values needed for real time <b>VMCLM</b> .
	VHLMLEG	Sets values needed for legacy <b>VHLM</b> .
	VHLMRT	Sets values needed for real time <b>VHLM</b> .
	VCSMLEG	Sets values needed for legacy <b>VCSM</b> .
	VCSMRT	Sets values needed for real time <b>VCSM</b> .
	VETMLEG	Sets values needed for legacy <b>VETM</b> .
	VETMRT	Sets values needed for real time <b>VETM</b> .
	ENABLE	Edits the Out Of Order Message for legacy Options.
	KMPOPTS	Creates array of options for <b>ENABLE</b> .
	GLOSTATS(KMPDIRS)	Drives collection of Global Size metrics.
	GLOSET(KMPDIR)	Collates Global Size metrics.
	ZERO	Collects <b>zero</b> node data.
<b>KMPSYNTH</b>		<b>Collection of callable Synthetic Transactions.</b>
	SYNRCMD	Synthetic transaction to execute routine commands.
	ONE	Supports SYNRCMD.

Routine	Line Tag	Description
	TWO	Supports SYNRCMD.
	SYNFILE	Synthetic transaction to write and read from a file.
	SYNVPR	Synthetic transaction to execute the <b>VPR GET PATIENT DATA</b> function (does <i>not</i> return actual data).
	PATLIST	Returns information of Patients to drive SYNVPD and CPRS Coversheet loads.
	STATS	Calculates <b>VBEM</b> data for transactions.
	LOREM	Lorem Ipsum text for the <b>SYNFILE</b> function.

**Table 13: VSM Utility REST Class**

URL Path	Method	Purpose
/GetNode	GET	Returns the node receiving the request.
/GetConfiguration	GET	Returns configuration information from the CPF file and individual Monitors.
/GetHttpMetrics	GET	Returns the status and timings of HTTP posts from VistA.
/KillData	GET	Provides a means to stop monitors and delete data in case of an emergency.
/StartMonitor	GET	Provides a means to start monitors remotely.
/GetRetryData	GET	Provides visibility into the “ <b>retry</b> ” node in <b>^KMPTMP</b> .
/GetConfig	POST	Returns configuration information from the CPF file and individual Monitors.
/SetConfig	POST	Provides means to update monitor configuration.
/GetError	POST	Returns data from the VistA error trap.
/GetCtmLog	POST	Returns entries from the VSM CACHE TASK LOG (#8969.03) file for debugging.
/GetPatientList	POST	Returns data for use in synthetic transactions.
/Retry	POST	Triggers a resend of any data that failed to transmission in <b>last seven days</b> .
/GetPackages	POST	Returns a list of packages from the Package file.
/GetHttpMetrics	POST	Returns the status and timings of HTTP posts from VistA.
/ImAlive	POST	Returns <b>OK</b> (ping).
/SynthRcmd	POST	Runs a VSM synthetic transaction – gets timing of action.



URL Path	Method	Purpose
/SynthFile	POST	Runs a VSM synthetic transaction – gets timing of action.
/SynthVpr	POST	Runs a VPR synthetic transaction – gets timing of action.

## 4 Exported Options

This section lists the options in the OPTION (#19) file exported with VistA System Monitor (VSM).

### 4.1 KMPV VSM MANAGEMENT Menu Option

Figure 4: KMPV VSM MANAGEMENT Menu Option

NAME: <b>KMPV VSM MANAGEMENT</b>	MENU TEXT: VSM MANAGEMENT
TYPE: run routine	CREATOR: L,J
LOCK: KMPVOPS	ROUTINE: EN^KMPVLM
UPPERCASE MENU TEXT: VSM MANAGEMENT	

### 4.2 KMPV VTCM DATA RETRANSMISSION Option

Figure 5: KMPV VTCM DATA RETRANSMISSION Option

NAME: <b>KMPV VTCM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VTCM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VTCM metrics that did not send successfully.	
ROUTINE: RETRY^KMPTCMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VTCM DATA RETRANSMISSION

### 4.3 KMPV VMCM DATA RETRANSMISSION Option

Figure 6: KMPV VMCM DATA RETRANSMISSION Option

NAME: <b>KMPV VMCM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VMCM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VMCM metrics that did not send successfully.	
ROUTINE: RETRY^KMPMCMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VMCM DATA RETRANSMISSION

## 4.4 KMPV VHLM DATA RETRANSMISSION Option

Figure 7: KMPV VHLM DATA RETRANSMISSION Option

NAME: <b>KMPV VHLM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VHLM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VHLM metrics that did not send successfully.	
ROUTINE: RETRY^KMPHLMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VHLM DATA RETRANSMISSION

## 4.5 KMPV VSTM DATA RETRANSMISSION Option

Figure 8: KMPV VSTM DATA RETRANSMISSION Option

NAME: <b>KMPV VSTM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VSTM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
PACKAGE: CAPACITY MANAGEMENT - VSM	
DESCRIPTION: Background task to resend any VSTM metrics that did not send successfully.	
ROUTINE: RETRY^KMPSTMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	
UPPERCASE MENU TEXT: KMPV VSTM DATA RETRANSMISSION	

## 4.6 KMPV VBEM DATA RETRANSMISSION Option

Figure 9: KMPV VBEM DATA RETRANSMISSION Option

NAME: <b>KMPV VBEM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VBEM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VBEM metrics that did not send successfully.	
ROUTINE: RETRY^KMPBEMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VBEM DATA RETRANSMISSION

## 4.7 KMPV VCSM DATA RETRANSMISSION Option

Figure 16: KMPV VCSM DATA RETRANSMISSION Option

NAME: <b>KMPV VCSM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VCSM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VCSM metrics that did not send successfully.	
ROUTINE: RETRY^KMPCSMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VCSM DATA RETRANSMISSION

## 4.8 KMPV VETM DATA RETRANSMISSION Option

Figure 17: KMPV VETM DATA RETRANSMISSION Option

NAME: <b>KMPV VETM DATA RETRANSMISSION</b>	MENU TEXT: KMPV VETM DATA RETRANSMISSION
TYPE: run routine	CREATOR: L,J
DESCRIPTION: Background task to resend any VETM metrics that did not send successfully.	
ROUTINE: RETRY^KMPETMRT	SCHEDULING RECOMMENDED: YES
KEEP FROM DELETING: Yes	UPPERCASE MENU TEXT: KMPV VETM DATA RETRANSMISSION

## 4.9 KMPV-CLIENT-SRV Option—Deprecated

Figure 10: KMPV-CLIENT-SRV Option

NAME: <b>KMPV-CLIENT-SRV</b>	MENU TEXT: KMPV-CLIENT-SRV
TYPE: server	CREATOR: L,J
ROUTINE: KMPVCSRV	SERVER ACTION: RUN IMMEDIATELY
SERVER MAIL GROUP: CPE-CP-SUPPORT	
SUPPRESS BULLETIN: NO (DEFAULT) SEND A BULLETIN	
UPPERCASE MENU TEXT: KMPV-CLIENT-SRV	



**NOTE:** The **KMPV-CLIENT-SRV** option will remain at the sites; however, it would only be used if a rollback to a previous version is required.

## 4.10 KMPV MANAGEMENT MENU

For details on this menu, see Section [8.2.7](#).

## 5 Archiving

Data is removed continuously from the sites. There are no special archiving procedures required with the VistA System Monitor (VSM) 4.0 software.

## 6 Application Programming Interfaces (APIs)

There are no VSM callable routines, entry points, or Application Programming Interfaces (APIs) that can be called by other software.

## 7 External Relationships

### 7.1 Caché Task Manager

[Table 14](#) details the parameters used to enter the task in the Caché Task Manager to start the VSM monitors on each node. This is created by running the **KMPVTSK** line tag of the **KMPVCBG** routine. The person running this line tag/routine *must* have either of the following roles:

- **%All**
- **%Manager**

**Table 14: Caché Task Manager Task Values**

Field	Entry
Task Name:	<b>KMPVRUN</b>
Description:	<b>Start VSM Collection Drivers</b>
Namespace to run task in:	<b>Default routine namespace</b> - usually 3-letter site acronym (e.g., CTX for Central Texas)
Task type:	<b>RunLegacyTask</b>
ExecuteCode:	<b>D RUN^KMPVRUN</b>
Task priority:	<b>Priority Normal</b>
Run task as this user:	<b>Username</b> of person setting up task
Open output file when task is running?	<b>No</b>
Output file:	<b>Leave blank</b>
Reschedule task after system restart?	<b>Yes</b>

The task should be scheduled to run once daily at **1:00 AM**.

## 7.2 Dependencies

### 7.2.1 Packages

VSM is dependent on the legacy VistA software in [Table 15](#):

**Table 15: VSM Required Packages**

Software	Version	Patch Information
Kernel	8.0	Fully patched
Kernel Toolkit	7.3	Fully patched
VA FileMan	22.2	Fully patched
MailMan	8.0	Fully patched

## 8 Internal Relationships

This section lists entries in various VistA files necessary for the operation of VistA System Monitor (VSM).

### 8.1 LIST TEMPLATE (#409.61) File

#### 8.1.1 KMPV MANAGEMENT List Template

**Figure 11: KMPV MANAGEMENT List Template**

NAME: <b>KMPV MANAGEMENT</b>	TYPE OF LIST: PROTOCOL
RIGHT MARGIN: 80	TOP MARGIN: 8
BOTTOM MARGIN: 15	OK TO TRANSPORT?: NOT OK
USE CURSOR CONTROL: YES	PROTOCOL MENU: KMPV MANAGEMENT MENU
SCREEN TITLE: VSM MANAGEMENT	ALLOWABLE NUMBER OF ACTIONS: 2
AUTOMATIC DEFAULTS: YES	HIDDEN ACTION MENU: VALM HIDDEN ACTIONS
ITEM NAME: Monitor	COLUMN: 2
WIDTH: 45	DISPLAY TEXT: Monitor
ITEM NAME: Status	COLUMN: 47
WIDTH: 6	DISPLAY TEXT: Status
DEFAULT VIDEO ATTRIBUTES: R	
ITEM NAME: Days Not Sent	COLUMN: 55
WIDTH: 13	DISPLAY TEXT: Days Not Sent
ITEM NAME: Version	COLUMN: 70
WIDTH: 7	DISPLAY TEXT: Version
EXIT CODE: D EXIT^KMPVLM	HEADER CODE: D HDR^KMPVLM
HELP CODE: D HELP^KMPVLM	ENTRY CODE: D INIT^KMPVLM

## 8.2 PROTOCOL (#101) File

### 8.2.1 KMPV START MONITOR Protocol

Figure 12: KMPV START MONITOR Protocol

NAME: <b>KMPV START MONITOR</b>	ITEM TEXT: Start Monitor
TYPE: action	CREATOR: L,J
ENTRY ACTION: D STARTMON^KMPVLM	TIMESTAMP: 63417,37931

### 8.2.2 KMPV STOP MONITOR Protocol

Figure 13: KMPV STOP MONITOR Protocol

NAME: <b>KMPV STOP MONITOR</b>	ITEM TEXT: Stop Monitor
TYPE: action	CREATOR: L,J
ENTRY ACTION: D STOPMON^KMPVLM	TIMESTAMP: 63417,37989

### 8.2.3 KMPV VIEW CFG Protocol

Figure 14: KMPV VIEW CFG Protocol

NAME: <b>KMPV VIEW CFG</b>	ITEM TEXT: View CFG
TYPE: action	CREATOR: L,J
ENTRY ACTION: D VIEWCFG^KMPVLM	TIMESTAMP: 63417,38175

### 8.2.4 KMPV ALLOW TEST SYSTEM Protocol

Figure 15: KMPV ALLOW TEST SYSTEM Protocol

NAME: <b>KMPV ALLOW TEST SYSTEM</b>	ITEM TEXT: Allow Test
TYPE: action	CREATOR: L,J
ENTRY ACTION: D TESTSYS^KMPVLM	TIMESTAMP: 65457,38632

### 8.2.5 KMPV CONTACT Protocol

Figure 16: KMPV CONTACT Protocol

NAME: <b>KMPV CONTACT</b>	ITEM TEXT: Contact Info
TYPE: action	CREATOR: L,J
ENTRY ACTION: D CONTACT^KMPVLM	TIMESTAMP: 65457,38770

## 8.2.6 KMPV DELETE DATA Protocol

Figure 17: KMPV DELETE DATA Protocol

NAME: <b>KMPV DELETE DATA</b>	ITEM TEXT: Delete Data
TYPE: action	CREATOR: L,J
ENTRY ACTION: D KILL^KMPVLM	TIMESTAMP: 63417,35298

## 8.2.7 KMPV MANAGEMENT MENU Protocols

The following protocols on the KMPV MANAGEMENT MENU ([Figure 18](#)) are stored in the PROTOCOL (#101) file:

Figure 18: KMPV MANAGEMENT MENU

NAME: <b>KMPV MANAGEMENT MENU</b>	ITEM TEXT: KMPV MANAGEMENT MENU
TYPE: menu	CREATOR: L,J
COLUMN WIDTH: 26	MNEMONIC WIDTH: 6
ITEM: KMPV START MONITOR	MNEMONIC: STRT
SEQUENCE: 1	
ITEM: KMPV STOP MONITOR	MNEMONIC: STOP
SEQUENCE: 2	
ITEM: KMPV VIEW CFG	MNEMONIC: VIEW
SEQUENCE: 3	
ITEM: KMPV DELETE DATA	MNEMONIC: DEL
SEQUENCE: 6	
ITEM: KMPV ALLOW TEST SYSTEM	MNEMONIC: TEST
SEQUENCE: 5	
ITEM: KMPV CONTACT	MNEMONIC: INFO
SEQUENCE: 4	
HEADER: D SHOW^VALM	MENU PROMPT: Select Action
TIMESTAMP: 63452,46698	

## 8.3 FORM (#.403) File

### 8.3.1 KMPV EDIT CONFIGURATION Form

Figure 19: KMPV EDIT CONFIGURATION Form

NAME: <b>KMPV EDIT CONFIGURATION</b>	READ ACCESS: @
WRITE ACCESS: @	CREATOR: 520791172
DATE CREATED: OCT 14, 2014@14:28	DATE LAST USED: OCT 31, 2014@12:04
PRIMARY FILE: 8969	DISPLAY ONLY: NO
FORM ONLY: NO	COMPILED: YES
PAGE NUMBER: 1	PAGE COORDINATE: 1,1
PAGE NAME: Page 1	
BLOCK NAME: KMPV EDIT CFG	BLOCK ORDER: 1
BLOCK COORDINATE: 1,1	TYPE OF BLOCK: EDIT
BLOCK NAME: KMPV EDIT TITLE	BLOCK ORDER: 2
BLOCK COORDINATE: 16,1	TYPE OF BLOCK: DISPLAY



## 8.3.2 KMPV VIEW CONFIGURATION Form

Figure 20: KMPV VIEW CONFIGURATION Form

NAME: <b>KMPV VIEW CONFIGURATION</b>	READ ACCESS: @
WRITE ACCESS: @	CREATOR: 520791172
DATE CREATED: OCT 15, 2014@08:48	DATE LAST USED: OCT 31, 2014@12:03
PRIMARY FILE: 8969	DISPLAY ONLY: YES
FORM ONLY: NO	COMPILED: YES
PAGE NUMBER: 1	PAGE COORDINATE: 1,1
PAGE NAME: Page 1	
BLOCK NAME: KMPV VIEW CFG	BLOCK ORDER: 1
BLOCK COORDINATE: 1,1	TYPE OF BLOCK: DISPLAY
BLOCK NAME: KMPV VIEW TITLE	BLOCK ORDER: 2
BLOCK COORDINATE: 16,1	TYPE OF BLOCK: DISPLAY

## 8.3.3 Database Integration Agreements (IAs)

Figure 21: VSM Database Integration Agreements (IAs)

IA#:	Name-Components:	Usage:
-----	-----	-----
10097	%ZOSV-GETENV, \$\$OS, \$\$VERSION	Supported
10112	VASITE-\$\$\$SITE	Supported
10060	New Person File	Supported
10035	Patient File	Supported
3027	Security/Sensitive Record access	Supported
2734	MESSAGE & MAILBOX UTILITIES API-\$\$NETNAME	Supported
10073	MAILMAN: Message Body Access, including Servers-REC	Supported
4440	DBIA4440	Supported
1966	DBIA1966	Subscription
6877	Read access to HL7 Message Text file for capacity planning	Private
6878	Read access to FILE 773 for capacity planning	Private
6882	Read access to HLO Message Body file for capacity planning	Private
6883	Read access to HLO Messages file for capacity planning	Private
6247	Direct KMPV read to KMPTMP	Private
7135	VPR GET PATIENT DATA XML	Private
7136	VPR GET PATIENT DATA JSON	Private
7138	DIRECT READ OF ERROR LOG FILE	Private
7139	DIRECT READ OF ERROR TRAP SUMMARY FILE	Private
10046	XUWORKDAY	Supported
10103	XLFDT	Supported
6342	Kernel-Storage	Private

## 9 Global Variables

There are no VSM global variables.

## 10 Security

### 10.1 Mail Group

VSM support can be reached by emailing **VA IT EPMO CPE VistA System Monitor** <REDACTED>



**NOTE:** There are no VSM bulletins or alerts.

### 10.2 Remote Systems

Data collected does *not* contain:

- Personal Health Information (PHI).
- Patient, clinician, or financial data collected.

Examples of data collected include:

- Number of global **READs**/**WRITEs** per time period.
- Amount of storage space used by the system in question.

Data transmissions:

- **VTCM** data is sent to the CPE national database per configured collection interval.
- **VMCM** data is sent to the CPE national database per configured collection interval.
- **VHLM** data is sent to the CPE national database per configured collection interval.
- **VSTM** data is transmitted on the **1<sup>st</sup>** and **3<sup>rd</sup> Saturday** of each month.
- **VBEM** data is sent to the CPE national database per configured collection interval.
- **VCSM** data is sent to the CPE national database per configured collection interval.
- **VETM** data is sent to the CPE national database per configured collection interval.
- If the VistA site receives an HTTP **200** in response, it will delete the data on the site. If an HTTP code other than **200** is received, then the data will be put into the “**retry**” node of **^KMPTMP** for attempted resend up to the number of days in the **DAYS TO KEEP DATA** (#1.01) field in the **VSM CONFIGURATION** (#8969) file.

### 10.3 Archiving

For VSM archiving information, see Section [5](#), “[Archiving](#).”

### 10.4 Interfacing

VSM software operates on standard VistA software and hardware.

## 10.5 Electronic Signatures

VSM does *not* use electronic signatures.

## 10.6 Security Menus and Options

VSM does *not* distribute any security menus or options.

## 10.7 Security Keys

The KMPVOPS security key is needed to access the **VSM MANAGEMENT** [KMPV VSM MANAGEMENT] option. This security key should only be given to those who manage VSM.

**Figure 22: KMPVOPS Security Key**

NAME: <b>KMPVOPS</b>	DESCRIPTIVE NAME: VSM OPERATIONS LOCK
----------------------	---------------------------------------

## 10.8 File Security

For a list of files exported with VSM, see Section 2, “[Files](#).”

## 10.9 References

For a list of document and other references, see the “[Reference Materials](#)” section.

# 11 Troubleshooting

There are no known issues or anomalies related to the VistA System Monitor (VSM) 4.0 software.

## 11.1 Operational Support

This software is intended to run automatically in the background and should require no operational support under normal operations. However, for those times where support is needed there are two mechanisms within this package to provide such functionality:

- Local Operational Support: There is a List Manager Application installed with this package that allows the local support staff to:
  - Start and stop monitors
  - View operational parameters
  - Delete all locally stored data in case of emergency



**REF:** These actions are documented in Section 2, “VSM Operation” section in the *VistA System Monitor (VSM) User Manual*.

- National CPE Support: Additionally, this software has the capability to receive requests for the same functions via HTTP requests from the CPE national database.
- The CPE support team can be reached via email at VA IT EPMO CPE VistA System Monitor <REDACTED>.

## 11.2 VA Enterprise Service Desk (ESD) Support

For Information Technology (IT) support **24** hours a day, **365** days a year contact the VA Enterprise Service Desk (ESD):

- Enter an **Incident** or **Request** ticket in the Information Technology Service Management (ITSM) **ServiceNow** (SNOW) system via the **YourIT** shortcut on your workstation.
- Phone: <REDACTED> or <REDACTED>
- ITSM Tool—**ServiceNow** site: <REDACTED>