



RESOURCE USAGE MONITOR (RUM) TECHNICAL MANUAL

Version 2.0

June 2003

Department of Veterans Affairs
VistA Health Systems Design & Development (HSD&D)
Development and Infrastructure Support (DaIS)

Revision History

Documentation Revisions

The following table displays the revision history for this document. Revisions to the documentation are based on patches and new versions released to the field.

Date	Revision	Description	Author
06/27/03	1.0	Initial Resource Usage Monitor V. 2.0 software documentation creation.	Robert Kamarowski, Bay Pines, FL and Thom Blom, Oakland, CA OIFO
11/17/03	1.1	Updated documentation for format and minor miscellaneous edits (no change pages issued)	Thom Blom, Oakland, CA OIFO

Table i: Documentation revision history

Patch Revisions

For a complete list of patches related to this software, please refer to the Patch Module on FORUM.

Revision History

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Acknowledgements

Capacity Planning (CP) Services' Resource Usage Monitor (RUM) Project Team consists of the following Development and Infrastructure Service (DaIS) personnel:

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- DaIS Resource Project Manager—John Kupecki
- Developers—Robert Kamarowski and Kornel Krechoweckyj
- Technical Writer—Thom Blom

Capacity Planning (CP) Services' RUM Project Team would like to thank the following sites/organizations/personnel for their assistance in reviewing and/or testing the RUM V. 2.0 software and documentation (names within teams are listed alphabetically):

- Albany Office of Information Field Office (OIFO)—Rick Esposito
- Connecticut HCS
- Heartland West VISN 15—Steve Crawford, Terry O'Bryan, and George Parry
- North Florida/South Georgia HCS—Vince Brinker
- Upstate New York HCS—Bob Wicks
- West River Junction, VT VAMC—Dennis Follensbee

Acknowledgements

Orientation

How to Use this Manual

Throughout this manual, advice and instructions are offered regarding the use of Resource Usage Monitor (RUM) software and the functionality it provides for Veterans Health Information Systems and Technology Architecture (VistA) software products.

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. The following table gives a description of each of these symbols:

Symbol	Description
	Used to inform the reader of general information including references to additional reading material.
	Used to caution the reader to take special notice of critical information.

Table ii: Documentation symbol descriptions

- Descriptive text is presented in a proportional font (as represented by this font).
- HL7 messages, "snapshots" of computer online displays (i.e., roll-and-scroll screen captures/dialogues) and computer source code, if any, are shown in a *non*-proportional font and enclosed within a box.
 - User's responses to online prompts will be boldface type. The following example is a screen capture of computer dialogue, and indicates that the user should enter two question marks:

```
Select Primary Menu option: ??
```

- The "<Enter>" found within these snapshots indicate that the user should press the Enter key on their keyboard. Other special keys are represented within < > angle brackets. For example, pressing the PF1 key can be represented as pressing <PF1>.
- Author's comments, if any, are displayed in italics or as "callout" boxes.



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

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

How to Obtain Technical Information Online

Exported file, routine, and global documentation can be generated through the use of Kernel, MailMan, and VA FileMan utilities.



Methods of obtaining specific technical information online will be indicated where applicable under the appropriate topic. Please refer to the *Resource Usage Monitor (RUM) Technical Manual* for further information.

Help at Prompts

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

To retrieve online documentation in the form of Help in any VistA character-based product:

- Enter a single question mark ("?") at a field/prompt to obtain a brief description. If a field is a pointer, entering one question mark ("?") displays the HELP PROMPT field contents and a list of choices, if the list is short. If the list is long, the user will be asked if the entire list should be displayed. A YES response will invoke the display. The display can be given a starting point by prefacing the starting point with an up-arrow ("^") as a response. For example, **^M** would start an alphabetic listing at the letter M instead of the letter A while **^127** would start any listing at the 127th entry.
- Enter two question marks ("??") at a field/prompt for a more detailed description. Also, if a field is a pointer, entering two question marks displays the HELP PROMPT field contents and the list of choices.
- Enter three question marks ("???") at a field/prompt to invoke any additional Help text stored in Help Frames.

Obtaining Data Dictionary Listings

Technical information about files and the fields in files is stored in data dictionaries. You can use the List File Attributes option on the Data Dictionary Utilities submenu in VA FileMan to print formatted data dictionaries.



For details about obtaining data dictionaries and about the formats available, please refer to the "List File Attributes" chapter in the "File Management" section of the *VA FileMan Advanced User Manual*.

Assumptions About the Reader

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

- VistA computing environment
- VA FileMan data structures and terminology
- Microsoft Windows
- M programming language

It provides an overall explanation of configuring the Resource Usage Monitor (RUM) interface and the changes contained in the Resource Usage Monitor (RUM) Version 2.0 software. 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 home pages on the World Wide Web (WWW) for a general orientation to VistA. For example, go to the Veterans Health Administration (VHA) Office of Information (OI) Health Systems Design & Development (HSD&D) Home Page at the following web address:

<http://vista.med.va.gov/>

Reference Materials

Readers who wish to learn more about the Resource Usage Monitor (RUM) software should consult the following:

- *Resource Usage Monitor (RUM) Installation Guide*
- *Resource Usage Monitor (RUM) User Manual*
- Capacity Planning (CP) Services' Home Page (for more information on Capacity Planning) at the following temporary web address:

<http://vista.med.va.gov/capman/default.htm>

This site contains additional information and documentation.

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

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

VistA documentation can be downloaded from the National VistA Support (NVS) anonymous directories or from the Health Systems Design and Development (HSD&D) VistA Documentation Library (VDL) web site:

<http://www.va.gov/vdl/>



For more information on the use of the Adobe Acrobat Reader, please refer to the *Adobe Acrobat Quick Guide* at the following web address:

<http://vista.med.va.gov/iss/acrobat/index.asp>



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Chapter 1: Introduction

This distribution contains the Resource Usage Monitor (RUM) software, version 2.0. This version of the software can be installed over any previous test versions of RUM without any adverse problems.

The Resource Usage Monitor (RUM) software is a fully automated support tool developed by Capacity Planning (CP) Services. It entails the capture of all system and Veterans Health Information Systems and Technology Architecture (VistA) option workload specifics from participating sites. This workload data is then summarized on a weekly basis and is automatically transferred via network mail (i.e., MailMan) to the Capacity Planning National Database.

The Veterans Health Administration (VHA) developed the Resource Usage Monitor (RUM) software in order to obtain more accurate information regarding the current and future VistA system and option workload at the VA Medical Centers (VAMCs).

Installing the RUM software creates the collection process mechanism and other necessary components of the software. The fully automated data collection mechanism entails capturing all system and VistA option workload specifics at the site into a temporary ^KMPTMP("KMPR") temporary collection global. The collection mechanism is continuously monitoring each process on the system while trapping system and VistA option workload data.

On a nightly basis, the RUM Background Driver option [KMPR BACKGROUND DRIVER] moves the data within the ^KMPTMP("KMPR") temporary collection global to the RESOURCE USAGE MONITOR file (#8971.1). Upon completion, the data within the ^KMPTMP("KMPR") temporary collection global is purged.

Every Sunday night, the RUM Background Driver option [KMPR BACKGROUND DRIVER] monitors the RESOURCE USAGE MONITOR file to ensure that only a maximum of three weeks worth of data is maintained at the site.

Also, each Sunday night, the RUM Background Driver option automatically compresses the information contained within the RESOURCE USAGE MONITOR file (#8971.1) into weekly statistics. These weekly statistics are converted into an electronic mail message that is automatically transferred via network mail (i.e., VistA MailMan) and merged into a Capacity Planning National Database where this data is used for evaluation purposes. The site also receives a summary of the system workload data in the form of an electronic turn-around message.



For a sample of the electronic turn-around message, please refer to the "Software Management" topic in Chapter 2 in the *Resource Usage Monitor (RUM) User Manual*.

The data is also available on Capacity Planning (CP) Services' Web site at the following Web addresses:

- Statistics—Provides statistics for each listed site:
<http://vista.med.va.gov/capman/Statistics/Default.htm>
- Projections—Provides data trends for each listed site:
<http://vista.med.va.gov/capman/TrendSetter/Default.htm>

Introduction

IRM staff utilizes the options that are available at the site to manage this software. IRM staff responsible for capacity planning tasks at the site can use these options to review system workload trends. Additionally, the IRM staff can review specific workload information for any given VistA option.

Chapter 2: Implementation and Maintenance

After the initial setup procedures are performed as detailed in the *Resource Usage Monitor (RUM) Installation Guide*, and IRM staff starts the collection process with the software-supplied option, the software basically operates transparent to IRM with minimal impact on system resources. The software uses the Kernel-supplied TaskMan utility to schedule a background task and it is then rescheduled to run on a regular nightly basis. The nightly time frame for data file upload was chosen in order to keep temporary global information to a minimum size.



For more information on initial setup procedures, please refer to "Preliminary Consideration" topic in the *Resource Usage Monitor (RUM) Installation Guide*.



For more information on RUM and RUM-related options, please refer to Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Implementation

^KMPR Global

The Resource Usage Monitor (RUM) software creates the ^KMPR global to store the RESOURCE USAGE MONITOR file (#8971.1) information. This global will be trimmed (records deleted) each Sunday by the RUM Background Driver option [KMPR BACKGROUND DRIVER] task to contain a maximum of 21 days of data.

IRM staff should ensure that adequate disk space exists for the ^KMPR global after volume set placement for this global has been determined. The following are sample VistA Composite Index (VCI) estimates:

- VCI 1 Site—75 MB
- VCI 3 Site—40 MB



For more information on the ^KMPR global, please refer to Chapter 4, "Global Translation, Journaling, and Protection," in this manual.

^KMPTMP("KMPR") Global

The Resource Usage Monitor (RUM) software utilizes the ^KMPTMP("KMPR") temporary collection global to store RUM data. This global will contain one day's worth of data at maximum. The ^KMPTMP("KMPR") temporary collection global will be purged automatically by the nightly RUM Background Driver [KMPR BACKGROUND DRIVER] task. This option is scheduled to run every night at 1 a.m.

In terms of allocating the necessary disk space to accommodate the size and expected growth of ^KMPTMP, this value will vary somewhat depending on the size and overall workload level at the medical center. In general, sites should allow approximately 117,760,000 bytes (i.e., 115,000 DSM blocks

or 57,500 Cache blocks) for ^KMPTMP and ensure that an appropriate reference entry for this global exists in the translation table.



For more information on the ^KMPTMP("KMPR") temporary collection global, please refer to Chapter 4, "Global Translation, Journaling, and Protection," in this manual.

RUM Background Driver Option

The IRM staff should use the Status of RUM Collection option [KMPR STATUS COLLECTION] to ensure that the RUM Background Driver option [KMPR BACKGROUND DRIVER] is scheduled to run every day at 1 a.m.

If the RUM Background Driver option [KMPR BACKGROUND DRIVER] is not shown as being scheduled to run in the future, the IRM staff should use TaskMan's Schedule/Unschedule Options option [XUTM SCHEDULE], located under the Taskman Management menu [XUTM MGR], to schedule the KMPR BACKGROUND DRIVER option to run every day at 1 a.m.



Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the ^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.



For more information on the Background Driver option, please refer to the "RUM Background Driver Option" topic in Chapter 7, "Exported Options," in this manual.

Collecting RUM Data

The IRM staff should invoke the Start RUM Collection option [KMPR START COLLECTION] to begin the collection of system and VistA option workload data.



For more information on the Start RUM Collection option, please refer to the "STR—Start RUM Collection Option" topic in the Chapter 7, "Exported Options," in this manual.

Maintenance

Information throughout this manual is meant to help IRM in the maintenance of the software. The discussion that follows covers the options available to assist IRM in that maintenance.

RUM Manager Menu

All options for the RUM Manager Menu [KMPR RUM MANAGER MENU] can be found under the Capacity Management menu [XTCM MAIN]. The XTCM MAIN menu is found under the Eve menu and should be assigned to IRM staff member(s) who support(s) this software and other capacity planning tasks.



For more information on the RUM Manger Menu, please refer to the "RUM Manager Menu" topic in the Chapter 7, "Exported Options," in this manual.

RUM Background Driver Option

The IRM staff should first invoke the Status of RUM Collection option [KMPR STATUS COLLECTION], which is located under the RUM Manager Menu [KMPR RUM MANAGER MENU] to ensure that the RUM Background Driver option [KMPR BACKGROUND DRIVER] is scheduled to run every day at 1 a.m.

If the RUM Background Driver option [KMPR BACKGROUND DRIVER] is not shown as being scheduled to run in the future, use TaskMan's Schedule/Unschedule Options option [XUTM SCHEDULE], located under the Taskman Management menu [XUTM MGR], to schedule the KMPR BACKGROUND DRIVER option to run every day at 1 a.m.



Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the ^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.



For more information on the Background Driver option, please refer to the "RUM Background Driver Option" topic in the Chapter 7, "Exported Options," in this manual.

Collecting RUM Data

The IRM staff should invoke the Start RUM Collection option [KMPR START COLLECTION] to begin the collection of system and VistA option workload data.



For more information on the Start RUM Collection option, please refer to the "STR—Start RUM Collection Option" topic in the Chapter 7, "Exported Options," in this manual.

Chapter 3: Files

The Resource Usage Monitor (RUM) software consists of two globals with one file, the RESOURCE USAGE MONITOR file (#8971.1).

This chapter describes the RUM-related file including the file number, file name, global location, and description of the file.



For more information on the RUM globals, please refer to Chapter 4, "Global Translation, Journaling, and Protection," in this manual.

Files

File Number	File Name	Global	File Description
8971.1	RESOURCE USAGE MONITOR	^KMPCR(8971.1	This file stores system and VistA option workload information. No data comes with the file.

Table 3-1: RUM file list

Templates

This version of the Resource Usage Monitor (RUM) software does *not* contain any templates.

Chapter 4: Global Translation, Journaling, and Protection

The following globals are distributed with the Resource Usage Monitor (RUM) software:

Global	Description
^KMPR	<p>The ^KMPR global contains data for the RESOURCE USAGE MONITOR file. This global only contains the RESOURCE USAGE MONITOR file (#8971.1).</p> <p>Each Sunday this global will be trimmed (records deleted) automatically to contain a maximum of 21 days of data. This global is trimmed by the RUM Background Driver option [KMPR BACKGROUND DRIVER], which is scheduled to run every day at 1 a.m.</p>
^KMPTMP("KMPR")	<p>The ^KMPTMP temporary collection global is the storage location for inter-process temporary data. The Resource Usage Monitor (RUM) software uses the ^KMPTMP("KMPR") sub-node to temporarily store one day's worth of data at maximum.</p> <p>The contents of this sub-node are deleted by the RUM Background Driver option [KMPR BACKGROUND DRIVER], which is scheduled to run every day at 1 a.m.</p> <p>In terms of allocating the necessary disk space to accommodate the size and expected growth of ^KMPTMP, this value will vary somewhat depending on the size and overall workload level at the medical center. In general, sites should allow approximately 117,760,000 bytes (i.e., 115,000 DSM blocks or 57,500 Cache blocks) for ^KMPTMP and ensure that an appropriate reference entry for this global exists in the translation table.</p>

Table 4-1: RUM global descriptions

 This version of the Resource Usage Monitor (RUM) software deletes obsolete RUM data from the temporary ^XTMP("KMPR") global.

Translation

The following table lists the translation requirements/recommendations for the RUM globals:

Global	Translation
^KMPR	Mandatory, if the operating system supports this function.
^KMPTMP("KMPR")	<p>Recommended. As per the <i>Kernel Technical Manual</i>:</p> <p>The ^KMPTMP temporary collection global should be translated, if the operating system supports this function.</p>

Table 4-2: RUM global translation requirements/recommendations

Journaling

The following table lists the journaling requirements/recommendations for the RUM globals:

Global	Journaling
^KMPPR	Mandatory, if the operating system supports this function.
^KMPTMP("KMPPR")	<i>Not</i> recommended. As per the <i>Kernel Technical Manual</i> : The ^KMPTMP temporary collection global should <i>not</i> be journalled.

Table 4-3: RUM global journaling requirements/recommendations

Protection

The following table lists the protection settings for the RUM globals:

Global Name	Protection	
	DSM for OpenVMS	Caché
^KMPPR	System: RW World: RW Group: RW User: RW	Owner: RW Group: RW World: RW Network: RW
^KMPTMP("KMPPR")	System: RW World: RW Group: RW User: RW	Owner: RW Group: RW World: RW Network: RW

Table 4-4: RUM global protection settings

Chapter 5: Routines

This chapter contains a list of the routines exported with the Resource Usage Monitor (RUM) software. A brief description of the routines is provided.

Routine Name	Routine Description
KMPRBD01 KMPRBD02 KMPRBD03 KMPRBD04	Routines that are called by the RUM Background Driver [KMPR BACKGROUND DRIVER] option. On a nightly basis, these routines: <ul style="list-style-type: none"> • Take data from the ^KMPTMP("KMPR") temporary collection global and transfer it to the RESOURCE USAGE MONITOR (#8971.1) file. • Purge the ^KMPTMP("KMPR") temporary collection global. Every Sunday night, these routines: <ul style="list-style-type: none"> • Ensure that the RESOURCE USAGE MONITOR file (#8971.1) contains a maximum of 21 days of data. • Compress weekly statistics from the data within the RESOURCE USAGE MONITOR file (#8971.1) and upload this information to the Capacity Planning National Database.
KMPRENV	An environment check routine that determines whether Kernel patch XU*8.0*186 has been installed. The Resource Usage Monitor V. 2.0 software installation requires that Kernel patch XU*8.0*186 be installed first.
KMPRP1	Routine called by the RUM Data for an Option option [KMPR PRINT OPTION DATA].
KMPRP2	Routine called by the Print Hourly Occurrence Distribution option [KMPR PRINT HOURLY OCCURRENCE]
KMPRPG01	Routine called by the RUM Data for All Nodes (Graph) option [KMPR GRAPH ALL NODES].
KMPRPG02	Routine called by the RUM Data for Single Node (Graph) option [KMPR GRAPH HOURLY SINGLE NODE].
KMPRPN03	Routine called by the Package Resource Usage option [KMPR PRINT NODE PERCENT].

Routine Name	Routine Description
KMPRPOST	<p>A post-install routine that does the following:</p> <ul style="list-style-type: none"> • Deletes obsolete Resource Usage Monitor (RUM) data from the ^XTMP("KMPR") global. • Checks and reschedules, if necessary, the RUM Background Driver [KMPR BACKGROUND DRIVER] task.
KMPRSS	<p>Routine has multiple entry points. One entry point displays the current status of the Resource Usage Monitor (RUM) collection routines. Another entry point informs the RUM collection routines to begin collecting system and VistA option workload data. Another entry point informs the RUM collection routines to stop collecting data.</p>
KMPRUTL KMPRUTL1 KMPRUTL2 KMPRUTL3	<p>Generic utility routines that are called by varying Resource Usage Monitor (RUM) routines.</p>

Table 5-1: RUM routine list

Chapter 6: Exported Options

The following options are exported with the Resource Usage Monitor (RUM) software.

Options *With Parents*

Options are listed in the order that they appear in the RUM Manager Menu:

Option Name	Option Menu Text	Type
KMPR RUM MANAGER MENU	RUM Manager Menu	Menu
KMPR STATUS COLLECTION	Status of RUM Collection option	Run Routine: STAT^KMPRSS
KMPR START COLLECTION	Start RUM Collection option	Run Routine: START^KMPRSS
KMPR STOP COLLECTION	Stop RUM Collection option	Run Routine: STOP^KMPRSS
KMPR REPORTS MENU	RUM Reports menu	Menu
KMPR GRAPH ALL NODES	RUM Data for All Nodes (Graph) option	Run Routine: EN^KMPRPG01
KMPR GRAPH HOURLY SINGLE NODE	RUM Data by Date for Single Node (Graph) option	Run Routine: EN^KMPRPG02
KMPR PRINT OPTION DATA	RUM Data for an Option option	Run Routine: EN^KMPRP1
KMPR PRINT HOURLY OCCURRENCE	Print Hourly Occurrence Distribution option	Run Routine: KMPRP2
KMPR PRINT NODE PERCENT	Package Resource Usage option	Run Routine: EN^KMPRPN03

Table 6-1: RUM exported options *with parents*

RUM Manager Menu

[KMPR RUM MANAGER MENU]

The RUM Manager Menu [KMPR RUM MANAGER MENU] is located under the Capacity Management menu [XTCM MAIN] menu.

The KMPR RUM MANAGER MENU and XTSM MAIN menu options should be assigned to the IRM staff member(s) who support(s) this software and other capacity planning tasks.

The RUM Manager Menu contains the following options:

STA	Status of RUM Collection	[KMPR STATUS COLLECTION]
STR	Start RUM Collection	[KMPR START COLLECTION]
STP	Stop RUM Collection	[KMPR STOP COLLECTION]
RPT	RUM Reports ...	[KMPR REPORTS MENU]

Figure 6-1: RUM Manager menu

STA—Status of RUM Collection Option [KMPR STATUS COLLECTION]

The Status of RUM Collection option [KMPR STATUS COLLECTION] displays the current status of the Resource Usage Monitor (RUM) collection routines. This option identifies whether RUM is currently running. Additionally, this option shows the reschedule frequency of the RUM Background Driver option [KMPR BACKGROUND DRIVER] and whether the ^KMPTMP("KMPR") temporary collection global is currently present.



This option has been enhanced with the RUM V. 2.0 software.



For more information on this option, please refer to the "STA—Status of RUM Collection Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

STR—Start RUM Collection Option [KMPR START COLLECTION]

The Start RUM Collection option [KMPR START COLLECTION] informs the Resource Usage Monitor (RUM) collection routines to begin collecting system and VistA option workload data.



For more information on this option, please refer to the "STR—Start RUM Collection Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

STP—Stop RUM Collection Option [KMPR STOP COLLECTION]

The Stop RUM Collection option [KMPR STOP COLLECTION] informs the Resource Usage Monitor (RUM) collection routines to stop collecting data.



For more information on this option, please refer to the "STP—Stop RUM Collection Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

RPT—RUM Reports Menu

[KMPR REPORTS MENU]

The RUM Reports menu [KMPR REPORTS MENU] contains various reports that generate report information from the system and VistA option workload statistics accumulated within the RESOURCE USAGE MONITOR file (#8971.1).

The RUM Reports menu consists of the following options:

GAN	RUM Data for All Nodes (Graph)	[KMPR GRAPH ALL NODES]
GSN	RUM Data by Date for Single Node (Graph)	[KMPR GRAPH HOURLY SINGLE NODE]
PDO	RUM Data for an Option	[KMPR PRINT OPTION DATA]
PHO	Print Hourly Occurrence Distribution	[KMPR PRINT HOURLY OCCURRENCE]
PRU	Package Resource Usage	[KMPR PRINT NODE PERCENT]

Figure 6-2: RUM Reports menu options



For more information on this option, please refer to the "RPT—RUM Reports Menu" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

GAN—RUM Data for All Nodes (Graph) Option

[KMPR GRAPH ALL NODES]

The RUM Data for All Nodes (Graph) option [KMPR GRAPH ALL NODES] displays a bar graph and totals of the selected system workload data element statistics for *all* system nodes within a given date range.



For more information on this option, please refer to the "GAN—RUM Data for All Nodes (Graph)" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

GSN—RUM Data by Date for Single Node (Graph) Option

[KMPR GRAPH HOURLY SINGLE NODE]

The RUM Data by Date for Single Node (Graph) option [KMPR GRAPH HOURLY SINGLE NODE] displays a bar graph and totals of the selected system workload data element statistics for a *single* node for each day within a given date range.



For more information on this option, please refer to the "GSN—RUM Data by Date for Single Node (Graph) Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

PDO—RUM Data for an Option
[KMPR PRINT OPTION DATA]

The RUM Data for an Option option [KMPR PRINT OPTION DATA] lists all the system workload data element statistics within a given date range for any of the following:

- Option
- Protocol
- Remote Procedure Call (RPC)

 For more information on this option, please refer to the "PDO—RUM Data for an Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

PHO—Print Hourly Occurrence Distribution Option
[KMPR PRINT HOURLY OCCURRENCE]

The Print Hourly Occurrence Distribution option [KMPR PRINT HOURLY OCCURRENCE] lists the system workload hourly occurrence for any of the following:

- Option/Task
- Protocol
- Remote Procedure Call (RPC)

 For more information on this option, please refer to the "PHO—Print Hourly Occurrence Distribution Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

PRU—Package Resource Usage Option
[KMPR PRINT NODE PERCENT]

The Package Resource Usage option [KMPR PRINT NODE PERCENT] displays the statistics for a specified VistA software application namespace per computer node. The printout shows the system workload as a percent of the totals that the given software application namespace was running as either an option, protocol, Remote Procedure Call (RPC), or background task.

 For more information on this option, please refer to the "PRU—Package Resource Usage Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Options *Without* Parents

The following option does not appear on any menu:

Option Name	Option Menu Text	Type
KMPR BACKGROUND DRIVER	RUM Background Driver	Run Routine: KMPRBD01

Table 6-2: RUM exported options *without* parents

RUM Background Driver Option

[KMPR BACKGROUND DRIVER]

The RUM Background Driver option [KMPR BACKGROUND DRIVER] is *not* assigned to any menu. This option is scheduled through TaskMan to start the Resource Usage Monitor (RUM) software's background routine.

This option will compress the Resource Usage Monitor statistics located in ^KMPTMP("KMPR") into daily statistics. This option must be queued to run each day on off hours.



Capacity Planning (CP) Services *strongly* recommends that the RUM Background Driver option [KMPR BACKGROUND DRIVER] be scheduled to run every day at 1 a.m., because this background driver is the main mechanism by which the ^KMPTMP("KMPR") temporary collection global is purged nightly and the RESOURCE USAGE MONITOR file (#8971.1) is trimmed (records deleted) to contain a maximum of 21 days of data every Sunday night.

Modification of the frequency and time may have adverse effects on the size of the ^KMPTMP("KMPR") temporary collection global and on the number of entries within the RESOURCE USAGE MONITOR file.

This option should be rescheduled with the Schedule/Unschedule Options option [XUTM SCHEDULE] located under the Taskman Management menu [XUTM MGR].



For more information on this option, please refer to the "RUM Background Driver Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Protocols

The Resource Usage Monitor (RUM) software does *not* export any protocols with this version.

Chapter 7: Archiving and Purging

Archiving

The Resource Usage Monitor (RUM) software contains one file called RESOURCE USAGE MONITOR. This file will automatically be trimmed (records deleted) by the RUM Background Driver option [KMPR BACKGROUND DRIVER] to contain a maximum of 21 days of data.

Since the Resource Usage Monitor (RUM) software automatically maintains a fixed amount of data at the site, archiving functions are not necessary and are not provided.

 For more information on the RUM Background Driver option, please refer to the "RUM Background Driver Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Purging

Resource usage data is accumulated into the ^KMPTMP("KMPR") temporary collection global and is killed every day at 1 a.m. by the RUM Background Driver option [KMPR BACKGROUND DRIVER] after being moved into the RESOURCE USAGE MONITOR file (#8971.1).

 For more information on the ^KMPTMP("KMPR") global, please refer to the "^KMPTMP("KMPR") Global" topic in Chapter 2, "Implementation and Maintenance," and in Chapter 4, "Global Translation, Journaling, and Protection," in this manual.

The RESOURCE USAGE MONITOR file. will be automatically trimmed (records deleted) by the RUM Background Driver option [KMPR BACKGROUND DRIVER] to contain a maximum of 21 days of data.

Since the Resource Usage Monitor (RUM) software automatically maintains a fixed amount of data at the site, purging functions are not necessary and are *not* provided.

 For more information on the RESOURCE USAGE MONITOR file, please refer to Chapter 3, "File," in this manual.

 For more information on the RUM Background Driver option, please refer to the "RUM Background Driver Option" topic in Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Chapter 8: Callable Routines

This version of the Resource Usage Monitor (RUM) software does *not* provide any callable routine entry points (i.e., Application Program Interfaces [APIs]) that are available for general use.

Chapter 9: External Relations

VistA Software Requirements

The Resource Usage Monitor (RUM) software relies on the following VistA software to run effectively (listed alphabetically):

Software	Version	Patch Information
Capacity Management Tools	1.0	Patch KMPD*1.0*1.
Health Level Seven (HL7)	1.6	Fully patched, including Patch HL*1.6*103.
Kernel	8.0	Fully patched, including Patch XU*8.0*186.
Kernel Toolkit	7.3	Fully patched.
MailMan	8.0	Fully patched.
VA FileMan	22.0	Fully patched.

Table 9-1: External Relations—VistA software

This version of Resource Usage Monitor (RUM) software uses Kernel's %ZOSVKR routine that utilizes system-specific calls.

All operating system interfaces on which the Resource Usage Monitor (RUM) software is dependent have been encapsulated into the Kernel %ZOSVKR routine. The %ZOSVKR routine contains code that enables use of the \$VIEW function to get job table information from the operating system.



The Kernel %ZOSVKR routine was first introduced with the issuance of Kernel Patch XU*8.0*107 and was updated with Kernel Patch XU*8.0*186.

Kernel Patch XU*8*107 also installed Resource Usage Monitor (RUM) data collection routines for DSM for OpenVMS sites.

DBA Approvals and Integration Agreements

The Database Administrator (DBA) maintains a list of Integration Agreements (IAs) or mutual agreements between software developers allowing the use of internal entry points or other software-specific features that are not available to the general programming public.

This version of Resource Usage Monitor (RUM) software is not dependent on any agreements.

To obtain the current list of IAs, if any, to which the Capacity Planning (CP) Services' RUM software (KMPR) is a custodian:

1. Sign on to the FORUM system (forum.va.gov).
2. Go to the DBA menu [DBA].
3. Select the Integration Agreements Menu option [DBA IA ISC].
4. Select the Custodial Package Menu option [DBA IA CUSTODIAL MENU].
5. Choose the ACTIVE by Custodial Package option [DBA IA CUSTODIAL].
6. When this option prompts you for a package, enter **CAPACITY MANAGEMENT - RUM** or **KMPR**
7. All current IAs to which the Capacity Planning (CP) Services' RUM software is a custodian are listed.

To obtain detailed information on a specific integration agreement:

1. Sign on to the FORUM system (forum.va.gov).
2. Go to the DBA menu [DBA].
3. Select the Integration Agreements Menu option [DBA IA ISC].
4. Select the Inquire option [DBA IA INQUIRY].
5. When prompted for "INTEGRATION REFERENCES," enter the specific integration agreement number of the IA you would like to display.
6. The option then lists the full text of the IA you requested.

To obtain the current list of IAs, if any, to which the Capacity Planning (CP) Services' RUM software (KMPR) is a subscriber:

1. Sign on to the FORUM system (forum.va.gov).
2. Go to the DBA menu [DBA].
3. Select the Integration Agreements Menu option [DBA IA ISC].
4. Select the Subscriber Package Menu option [DBA IA SUBSCRIBER MENU].
5. Choose the Print ACTIVE by Subscribing Package option [DBA IA SUBSCRIBER].
6. When prompted with "START WITH SUBSCRIBING PACKAGE," enter **KMPR** (in uppercase). When prompted with "GO TO SUBSCRIBING PACKAGE," enter **KMPR** (in uppercase).

7. All current IAs to which the Capacity Planning (CP) Services' RUM software is a subscriber are listed.

Chapter 10: Internal Relations

Option Dependencies

All options in the Resource Usage Monitor (RUM) software, under the RUM Manager Menu [KMPR MANAGER MENU], can function independently.

Only TaskMan's Schedule/Unschedule Options option [XUTM SCHEDULE], located under the Taskman Management menu [XUTM MGR], can invoke the RUM Background Driver option [KMPR BACKGROUND DRIVER].



For more information regarding the Resource Usage Monitor (RUM) options, please refer to Chapter 4, "RUM Options," in the *Resource Usage Monitor (RUM) User Manual*.

Relationship of RUM Software with VistA

HL7 V. 1.6

This version of Resource Usage Monitor (RUM) software requires that VistA HL7 Patch HL*1.6*103 be installed prior to the installation of the RUM V. 2.0 software. This patch updated the following three APIs, which are used for calculating the volume of HL7 activity at a site over a user-defined period of time:

- \$SCM^HLUCM
- \$SCM2^HLUCM
- \$SCM2F^HLUCM

These APIs calculate the volume of HL7 activity over a period of time. The information collected includes the following:

- Total number characters in the messages.
- Total Number of messages or message units.
- Total time elapsed for transmission of messages.



For more information regarding VistA HL7 Patch HL*1.6*103 and the APIs, please refer to the HL*1.6*103 patch description in the Patch Module on FORUM.

Capacity Management (CM) Tools V. 1.0

This version of Resource Usage Monitor (RUM) software requires that Capacity Management (CM) Tools Version 1.0 and Patch KMPD*1.0*1 be installed prior to the installation of the RUM V. 2.0 software. This software application also requires that the VistA HL7 software application, fully patched, also be installed.

Kernel V. 8.0

This version of Resource Usage Monitor (RUM) software uses Kernel's %ZOSVKR routine that utilizes system-specific calls. The Kernel %ZOSVKR routine was first introduced with the issuance of Kernel Patch XU*8.0*107 and was updated with Kernel Patch XU*8.0*186.



This distribution of the Resource Usage Monitor (RUM) software is dependent on Kernel Patch XU*8.0*186. Kernel Patch #186 (i.e., XU*8.0*186) is included in the KMPR2_0.KID file and is installed *before* the RUM V. 2.0 software.

Namespace

Capacity Planning (CP) Services has been given the KMP* namespace for both routines and global(s). The Resource Usage Monitor (RUM) software utilizes the KMPR namespace for its routines and global. Therefore, you should review your translation table setting(s) to determine the proper placement for the KMP* global namespace.



The Resource Usage Monitor (RUM) software utilizes Capacity Planning (CP) Services KMPU*-namespaced routines.

The KMPU*-namespaced routines are generic utility routines that were introduced with the issuance of the RUM V. 1.0 software but are not specific to the RUM software.

Chapter 11: Software-wide and Key Variables

The Resource Usage Monitor (RUM) software does *not* employ the use of software-wide or key variables.

Chapter 12: SAC Exemptions

This version of the Resource Usage Monitor (RUM) software does *not* have any Programming Standards and Conventions (SAC) exemptions.

Chapter 13: Software Product Security

Security Management

There are *no* special legal requirements involved in the use of the RUM software.

Mail Groups and Alerts

This version of the Resource Usage Monitor (RUM) software creates the following mail group:

KMP-CAPMAN.

This version of the Resource Usage Monitor (RUM) software does *not* make use of alerts.

Remote Systems

This version of the Resource Usage Monitor (RUM) software transmits weekly RUM statistics to the Capacity Planning National Database located at the Albany OI Field Office.

Interfacing

No *non-VA* products are embedded in or required by this version of the Resource Usage Monitor (RUM) software, other than those provided by the underlying operating systems.

This version of Resource Usage Monitor (RUM) software uses Kernel's %ZOSVKR routine that utilizes system-specific calls. The Kernel %ZOSVKR routine was first introduced with the issuance of Kernel Patch XU*8.0*107 and was updated with Kernel Patch XU*8.0*186.

All operating system interfaces on which the Resource Usage Monitor (RUM) software is dependent have been encapsulated into the Kernel %ZOSVKR routine. The %ZOSVKR routine contains code that enables use of the \$VIEW function to get job table information from the operating system.

Electronic Signatures

There are *no* electronic signatures used within this version of the Resource Usage Monitor (RUM) software.

Security Keys

There are *no* specific security keys exported with this version of the Resource Usage Monitor (RUM) software.

File Security

This version of the Resource Usage Monitor (RUM) software establishes the following security over its files:

File Number	File Name	DD	RD	WR	DEL	LAYGO	AUDIT
8971.1	RESOURCE USAGE MONITOR	@	@	@	@	@	@

Table 13-1: RUM VA FileMan file protection

Official Policies

There are *no* special legal requirements involved in the use of Resource Usage Monitor (RUM)'s interface.

Distribution of the Resource Usage Monitor (RUM) software is unrestricted.

Glossary

AAC	Austin Automation Center.
ADPAC	Automated D ata P rocessing A pplication C oordinator.
ANSI	American National Standards Institute.
API	Application P rogram I nterface.
APPLICATION	VistA software and documentation that supports the automation of a service (e.g., Laboratory or Pharmacy) within the Veterans Health Administration (VHA).
APPLICATION PROGRAM INTERFACE (API)	Program calls provided for use by application programmers. APIs allow programmers to carry out standard computing activities without needing to duplicate utilities in their own software. APIs also further DBA goals of system integration by channeling activities, such as adding new users, through a limited number of callable entry points.
ARRAY	An arrangement of elements in one or more dimensions. An M array is a set of nodes referenced by subscripts that share the same variable name.
BIO REFERENCE	Buffered I/O reference. A system workload data element that gives the number of times that a buffered access has been called because of M routine code execution. Terminals and printers are normally considered to be a buffered device within the M environment.
BULLETINS	Electronic mail messages that are automatically delivered by VistA MailMan under certain conditions. For example, a bulletin can be set up to "fire" when database changes occur, such as adding a new Institution in the INSTITUTION file (#4). Bulletins are fired by bulletin-type cross-references.
CALLABLE ENTRY POINT	Authorized program call that may be used in any VistA application software. The DBA maintains the list of DBIC-approved entry points.
CAPACITY PLANNING	The process of assessing a system's capacity and evaluating its efficiency relative to workload in an attempt to optimize system performance. (Formerly known as Capacity Management.)
CHUI	C haracter-based U ser I nterface (i.e., roll-and-scroll).
CO	Central O ffice.
CPU TIME	A system workload data element that gives the amount of time that the processor has spent executing M routine code.
CROSS REFERENCE	There are several types of cross-references available. Most generally, a VA FileMan cross-reference specifies that some action be performed when the field's value is entered, changed, or deleted. For several types of cross-references, the action consists of putting the value into a list; an index used when looking-up an entry or when sorting. The regular cross-reference is used for sorting and for lookup; you can limit it to sorting only.

DATA	A representation of facts, concepts, or instructions in a formalized manner for communication, interpretation, or processing by humans or by automatic means. The information you enter for the computer to store and retrieve. Characters that are stored in the computer system as the values of local or global variables. VA FileMan fields hold data values for file entries.
DATA DICTIONARY (DD)	<p>The Data Dictionary is a global containing a description of what kind of data is stored in the global corresponding to a particular file. VA FileMan uses the data internally for interpreting and processing files.</p> <p>A Data Dictionary contains the definitions of a file's elements (fields or data attributes); relationship to other files; and structure or design. Users generally review the definitions of a file's elements or data attributes; programmers review the definitions of a file's internal structure.</p>
DATA ELEMENT	A statistical unit by which to measure either system or VistA option workload. Eight data elements have been defined: CPU time, elapsed time, M commands, GLO references, DIO references, BIO references, page faults, and number of occurrences.
DBA	Database Administrator , oversees software development with respect to VistA Standards and Conventions (SAC) such as namespacing. Also, this term refers to the Database Administration function and staff.
DBIA	Database Integration Agreement —also known as Integration Agreements (IA), a formal understanding between two or more VistA software applications that describes how data is shared or how software interacts. The DBA maintains a list of IAs.
DEFAULT	Response the computer considers the most probable answer to the prompt being given. It is identified by double slash marks (//) immediately following it. This allows you the option of accepting the default answer or entering your own answer. To accept the default you simply press the Enter (or Return) key. To change the default answer, type in your response.
DELIMITER	Special character used to separate a field, record, or string. VA FileMan uses the caret character ("^") as the delimiter within strings.
DHCP	Decentralized Hospital Computer Program now known as Veterans Health Information Systems and Technology Architecture (VistA).
DIO REFERENCE	Disk (Direct) I/O reference. A system workload data element that gives the number of times that a disk access has been requested because of M routine code execution.
DIRECT MODE UTILITY	A program call that is made when working in direct programmer mode. A direct mode utility is entered at the MUMPS prompt (e.g., >D ^XUP). Calls that are documented as direct mode utilities <i>cannot</i> be used in application software code.
DoD	Department of Defense .
ELAPSED TIME	A system workload data element that gives the amount of actual time that has passed while executing M routine code.

ENCRYPTION	"Cryptographic transformation of data (plaintext) into a form (ciphertext) that conceals the data's original meaning to prevent it from being known or used."1
ENTRY	VA FileMan record. An internal entry number (IEN, the .001 field) uniquely identifies an entry in a file.
EXTRINSIC FUNCTION	Extrinsic function is an expression that accepts parameters as input and returns a value as output that can be directly assigned.
FACILITY	Geographic location at which VA business is performed.
FIELD	In a record, a specified area used for the value of a data attribute. The data specifications of each VA FileMan field are documented in the file's data dictionary. A field is similar to blanks on forms. It is preceded by words that tell you what information goes in that particular field. The blank, marked by the cursor on your terminal screen, is where you enter the information.
FILE	Set of related records treated as a unit. VA FileMan files maintain a count of the number of entries or records.
FILE MANAGER (VA FILEMAN)	Vista's Database Management System (DBMS). The central component of Kernel that defines the way standard VistA files are structured and manipulated.
FORM	Please refer to the Glossary entry for "ScreenMan Forms."
FORUM	The central E-mail system within VistA. Developers use FORUM to communicate at a national level about programming and other issues. FORUM is located at the OI Field Office—Washington, DC (162-2).
FREE TEXT	A DATA TYPE that can contain any printable characters.
GAL	Global Address List.
GLO REFERENCE	Global reference. A system workload data element that gives the number of times that a global variable name has been called because of M routine code execution.
GLOBAL VARIABLE	Variable that is stored on disk (M usage).
GUI	Graphical User Interface.
HEC	Health Eligibility Center.
HEALTH LEVEL SEVEN (HL7)	National level standard for data exchange in all healthcare environments regardless of individual computer application systems.
HEALTH LEVEL SEVEN (HL7) VISTA	Messaging system developed as a VistA software application that follows the HL7 Standard for data exchange.
HIPAA	Health Insurance Portability and Accountability Act.
HSD&D	Health Systems Design and Development.
INPUT TEMPLATE	A pre-defined list of fields that together comprise an editing session.

DEA web site (http://www.deadiversion.usdoj.gov/ecomm/e_rx/con_ops/index.html): "Public Key Infrastructure Analysis Concept of Operations," Section 3.4.1 "Terms and Definitions"

INSTITUTION	A Department of Veterans Affairs (VA) facility assigned a number by headquarters, as defined by Directive 97-058. An entry in the INSTITUTION file (#4) that represents the Veterans Health Administration (VHA).
INTEGRATION AGREEMENTS (IA) (Formerly known as DATABASE INTEGRATION AGREEMENTS [DBIA])	Integration Agreements (IA) —also known as Database Integration Agreements (DBIA) —define agreements between two or more VistA software applications to allow access to one development domain by another. Any software developed for use in the VistA environment is required to adhere to this standard; as such it applies to vendor products developed within the boundaries of DBA assigned development domains (e.g., MUMPS AudioFax). An IA defines the attributes and functions that specify access. All IAs are recorded in the Integration Agreement database on FORUM. Content can be viewed using the DBA menu or the System Design & Development's web page.
INTERNAL ENTRY NUMBER (IEN)	The number used to identify an entry within a file. Every record has a unique internal entry number.
IRA	Initial Request Analysis.
IRM	Information Resource Management. A service at VA medical centers responsible for computer management and system security.
ISO	Information Security Officer.
ISS	Infrastructure and Security Services.
ITAC	Information Technology Approval Committee was established as an advisory committee to the Chief Information Officer to ensure that the Information Technology (IT) program supports VHA goals and to provide guidance concerning priorities for IT initiatives.
IV&V	Independent Validation and Verification Team acts to ensure the functional integrity and technical correctness of HSD&D software, processes, and documentation.
KERNEL	Kernel is VistA software that functions as an intermediary between the host operating system and other VistA software applications (e.g., Laboratory, Pharmacy, IFCAP, etc.). Kernel provides a standard and consistent user and program interface between software applications and the underlying M implementation.
LAN	Local Area Network.
LDAP	Lightweight Directory Access Protocol.
LINK	Non-specific term referring to ways in which files may be related (via pointer links). Files have links into other files.
M COMMANDS	A system workload data element that gives the number of distinct commands that have been executed while executing M routine code.
MAILMAN	VistA software that provides a mechanism for handling electronic communication, whether it's user-oriented mail messages, automatic firing of bulletins, or initiation of server-handled data transmissions.

MENU	List of choices for computing activity. A menu is a type of option designed to identify a series of items (other options) for presentation to the user for selection. When displayed, menu-type options are preceded by the word "Select" and followed by the word "option" as in Select Menu Management option: (the menu's select prompt).
MENU SYSTEM	The overall Menu Manager logic as it functions within the Kernel framework.
MENU TEXT	The descriptive words that appear when a list of option choices is displayed. Specifically, the Menu Text field of the OPTION file (#19). For example, User's Toolbox is the menu text of the XUSERTOOLS option. The option's synonym is TBOX.
NAMESPACING	Convention for naming VistA software elements. The DBA assigns unique two to four character string prefix for software developers to use in naming routines, options, and other software elements so that software can coexist. The DBA also assigns a separate range of file numbers to each software application.
NUMBER OF OCCURRENCES	A system workload data element that gives a total measure of the number of VistA option executions.
NVS	National VistA Support.
OIFO	Office of Information Field Office.
OPTION	An entry in the OPTION file. As an item on a menu, an option provides an opportunity for users to select it, thereby invoking the associated computing activity. Options may also be scheduled to run in the background, non-interactively, by Task Manager.
OPTION NAME	Name field in the OPTION file (e.g., XUMAINT for the option that has the menu text "Menu Management"). Options are namespaced according to VistA conventions monitored by the DBA.
PACKAGE	Please refer to the Glossary entry for "Software."
PAGE FAULTS	A system workload data element that gives the number of times that a job had to use non-physical (i.e., paged) memory.
POINTER	The address at which a data value is stored in computer memory. A relationship between two VA FileMan files, a pointer is a file entry that references another file (forward or backward). Pointers can be an efficient means for applications to access data by referring to the storage location at which the data exists.
PRIMARY KEY	A Data Base Management System construct, where one or more fields uniquely define a record (entry) in a file (table). The fields are required to be populated for every record on the file, and are unique, in combination, for every record on the file.

PRIVATE INTEGRATION AGREEMENT	Where only a single application is granted permission to use an attribute/function of another VistA software application. These IAs are granted for special cases, transitional problems between versions, and release coordination. A Private IA is also created by the requesting software application based on their examination of the custodian software application's features. An example would be where one software application distributes a patch from another software application to ensure smooth installation.
PROMPT	The computer interacts with the user by issuing questions called prompts, to which the user issues a response.
RECORD	Set of related data treated as a unit. An entry in a VA FileMan file constitutes a record. A collection of data items that refer to a specific entity (e.g., in a name-address-phone number file, each record would contain a collection of data relating to one person).
REQUIRED FIELD	A mandatory field, one that must not be left blank. The prompt for such a field will be repeated until the user enters a valid response.
REVERSE VIDEO	The reversal of light and dark in the display of selected characters on a video screen. For example, if text is normally displayed as black letters on a white background, reverse video presents the text as white letters on a black background or vice versa.
ROUTINE	Program or a sequence of instructions called by a program that may have some general or frequent use. M routines are groups of program lines, which are saved, loaded, and called as a single unit via a specific name.
RUM	Resource Usage Monitor. A fully automated support tool developed by Capacity Planning (CP) Services, which entails the daily capture of system and VistA option workload information from participating sites.
SAC	Standards and Conventions. Through a process of quality assurance, all VistA software is reviewed with respect to SAC guidelines as set forth by the Standards and Conventions Committee (SACC).
SACC	VistA's Standards and Conventions Committee. This Committee is responsible for maintaining the SAC.
SCREEN EDITOR	VA FileMan's Screen-oriented text editor. It can be used to enter data into any WORD-PROCESSING field using full-screen editing instead of line-by-line editing.
SCREENMAN FORMS	Screen-oriented display of fields, for editing or simply for reading. VA FileMan's Screen Manager is used to create forms that are stored in the FORM file (#.403) and exported with a software application. Forms are composed of blocks (stored in the BLOCK file [#.404]) and can be regular, full screen pages or smaller, "pop-up" pages.
SCREEN-ORIENTED	A computer interface in which you see many lines of data at a time and in which you can move your cursor around the display screen using screen navigation commands. Compare to Scrolling Mode.
SCROLLING MODE	The presentation of the interactive dialog one line at a time. Compare to Screen-oriented.

SEPG	Software Engineering Process Group.
SUPPORTED REFERENCE INTEGRATION AGREEMENT	This applies where any VistA application may use the attributes/functions defined by the IA (these are also called " Public "). An example is an IA that describes a standard API such as DIE or VADPT. The software that creates/maintains the Supported Reference must ensure it is recorded as a Supported Reference in the IA database. There is no need for other VistA software applications to request an IA to use these references; they are open to all by default.
TEMPLATE	Means of storing report formats, data entry formats, and sorted entry sequences. A template is a permanent place to store selected fields for use at a later time. Edit sequences are stored in the INPUT TEMPLATE file (#.402), print specifications are stored in the PRINT TEMPLATE file (#.4), and search or sort specifications are stored in the SORT TEMPLATE file (#.401).
TOOLKIT	<p>Toolkit (or Kernel Toolkit) is a robust set of tools developed to aid the VistA development community, and Information Resources Management (IRM), in writing, testing, and analysis of code. They are a set of generic tools that are used by developers, technical writers, software quality assurance (SQA) personnel, and software applications to support distinct tasks.</p> <p>Toolkit provides utilities for the management and definition of development projects. Many of these utilities have been used by the OI Field Office–Oakland for internal management and have proven valuable. Toolkit also includes tools provided by other OI Field Offices based on their proven utility.</p>
TRIGGER	A type of VA FileMan cross-reference. Often used to update values in the database given certain conditions (as specified in the trigger logic). For example, whenever an entry is made in a file, a trigger could automatically enter the current date into another field holding the creation date.
TURN-AROUND MESSAGE	The mail message that is returned to the KMP-CAPMAN mail group detailing the system workload change over the previous reported session.
VA	The Department of Veterans Affairs, formerly called the Veterans Administration.
VA FILEMAN	Set of programs used to enter, maintain, access, and manipulate a database management system consisting of files. A software application of online computer routines written in the M language, which can be used as a standalone database system or as a set of application utilities. In either form, such routines can be used to define, enter, edit, and retrieve information from a set of computer stored files.
VAMC	Veterans Affairs Medical Center.

Glossary

VARIABLE	Character, or group of characters, that refer(s) to a value. M (previously referred to as MUMPS) recognizes 3 types of variables: local variables, global variables, and special variables. Local variables exist in a partition of main memory and disappear at sign-off. A global variable is stored on disk, potentially available to any user. Global variables usually exist as parts of global arrays. The term "global" may refer either to a global variable or a global array. A special variable is defined by systems operations (e.g., \$TEST).
VDSI	VistA D ata S ystems & I ntegration.
VHA	Veterans H ealth A dministration.
VISN	Veterans I ntegrated S ervice N etwork.
VISTA	Veterans Health I nformation S ystems and T echnology A rchitecture (VistA) of the Veterans Health Administration (VHA), Department of Veterans Affairs (VA). VistA software, developed by the VA, is used to support clinical and administrative functions at VHA sites nationwide. Server-side code is written in M, and, via Kernel, runs on all major M implementations regardless of vendor. VistA is composed of software that undergoes a quality assurance process to ensure conformity with namespacing and other VistA standards and conventions.
WAN	W ide A rea N etwork.

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