

Statistical Analysis of Global Growth (SAGG) 2.0

User Manual



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Enterprise Systems Engineering (ESE)

Capacity and Performance Engineering (CPE)

Revision History

Documentation Revisions

[Table 1](#) displays the revision history for this document. Revisions to the documentation are based on patches and new versions released to the field.

Table 1. Documentation revision history

Date	Revision	Description	Author
12/30/2015	4.1	Updated document based on Statistical Analysis of Global Growth *SAGG) updates based on Kernel Patch XU*8.0*568. Software: SAGG 2.0.	J. L. (CPE): St. Petersburg Field Office Technical Writer: T. B.
10/--/2015	4.0	This patch enables SAGG to run on Linux based systems. It also does <i>not</i> collect metrics on all volume sets. Software: SAGG 2.0.	J. L. (CPE): St. Petersburg Field Office
07/--/2007	3.0	Patch SAGG 2.0 updates the SAGG PROJECT package to Version 2.0. This version removes support for DSM/MSM and now uses APIs from the CM TOOLS package, which are <i>not</i> SAGG specific. The only operating systems now supported are Cache for Windows and Cache for VMS. Other documentation updates: <ul style="list-style-type: none"> • The KMPS-SAGG mail group is no longer in use. The KMP-CAPMAN is now used for all notifications. • There are no new options, and they all work the same except for [KMPS SAGG STATUS]. This option now uses ListManager to the display is different. Software: SAGG 2.0.	Developer: R. K. from the SAGG Development Team. Technical Writer: S. S., Oakland Office of Information Field Office (OIFO)
01/--/2005	2.0	Reformatted document to follow current ISS standards. Reviewed document and edited for the “Data Scrubbing” and the “PDF 508 Compliance” projects. Data Scrubbing —Changed all patient/user TEST data to conform to HSD&D standards and conventions as indicated below: The first three digits (prefix) of any Social Security Numbers (SSN) start with “000” or “666.” Patient or user names are formatted as follows: KMPDPATIENT,[N] or KMPDUSER,[N] respectively, where the N is a number written out and incremented with each new entry (e.g., KMPDPATIENT, ONE,	Technical Writer: T. B., Oakland, CA OIFO

Date	Revision	Description	Author
		<p>KMPDPATIENT, TWO, etc.).</p> <p>Other personal demographic-related data (e.g., addresses, phones, IP addresses, etc.) were also changed to be generic.</p> <p>PDF 508 Compliance—The final PDF document was recreated and now supports the minimum requirements to be 508 compliant (i.e., accessibility tags, language selection, alternate text for all images/icons, fully functional Web links, successfully passed Adobe Acrobat Quick Check).</p>	
07/--/1998	1.0	Initial Statistical Analysis of Global Growth (SAGG) 1.8 software documentation creation.	SAGG Development Team Technical Writer: T. B., Oakland Office of Information Field Office (OIFO)

Patch Revisions

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

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Orientation

How to Use this Manual

The purpose of this manual is to provide information about the Statistical Analysis of Global Growth (SAGG) 2.0 software. This manual defines the use of this software as a resource to Information Resource Management (IRM) staff responsible for capacity management functions at the site. It also highlights the use of the options that are available both locally at the site and nationally on FORUM.

Throughout this manual, advice and instructions are offered regarding the use of the Statistical Analysis of Global Growth (SAGG) software and the functionality it provides for Veterans Health Information Systems and Technology Architecture (VistA) software products.

Intended Audience

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

- Information Resource Management (IRM)—System administrators and Capacity Management personnel at Department of Veterans Affairs (VA) sites who are responsible for computer management and system security on the VistA M Servers.
- Product Development (PD)—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) 1.0 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 Internet and Intranet SharePoint sites and websites for a general orientation to VistA. For example, visit the Office of Information and Technology (OI&T) Product Development (PD) 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 2](#) gives a description of each of these symbols:

Table 2. Documentation symbol/term descriptions

Symbol	Description
	NOTE/REF: Used to inform the reader of general information including references to additional reading material.
	CAUTION or DISCLAIMER: 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 SAGG (KMPS) test patient and user names would be documented as follows:

- *KMPSPATIENT,ONE* or *KMPSUSER,ONE*
- *KMPSPATIENT,TWO* or *KMPSUSER,TWO*
- *KMPSPATIENT,THREE* or *KMPSUSER,THREE*
- *KMPSPATIENT,14* or *KMPSUSER,14*
- Etc.

- “Snapshots” of computer online displays (i.e., screen captures/dialogues) and computer source code is shown in a *non*-proportional font and can 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 (green circle with arrow pointing left).
6. Select/Highlight the **Back** command and select **Add** to add it to your customized toolbar.
7. Scroll through the command list in the left column until you see the **Forward** command (green circle with arrow pointing right).
8. Select/Highlight the **Forward** command and select **Add** to add it to the customized toolbar.
9. Select **OK**.

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



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

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 option on the Data Dictionary Utilities 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 the Statistical Analysis of Global Growth (SAGG) software should consult the following:

- *Statistical Analysis of Global Growth (SAGG) Installation Guide*
- *Statistical Analysis of Global Growth (SAGG) User Manual* (this manual)
- *Statistical Analysis of Global Growth (SAGG) Technical 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](#).

VistA documentation can be downloaded from the [VA Software Document Library \(VDL\)](#).



REF: See the [Statistical Analysis of Global Growth \(SAGG\) manuals on the VDL](#).

VistA documentation and software can also be downloaded from the Product Support (PS) Anonymous Directories.

1 Introduction

The Office of Information and Technology (OI&T) developed the Statistical Analysis of Global Growth (SAGG) software in order to obtain more accurate information regarding the current and future Veterans Health Information Systems and Technology Architecture (VistA) database growth rates at the VA Medical Centers (VAMCs).

The Statistical Analysis of Global Growth (SAGG) software is intended to be used by Information Resource Management (IRM) staff responsible for the capacity management functions at their facility. The SAGG software allows the facility to review database, software, and file size information.

The SAGG software is strongly dependent on the site to schedule and run the collection task on a regular basis. Menus and options are provided locally at the site to allow IRM staff to accomplish and monitor this task.

The collection task obtains information on the production global, software, and file information from the site and automatically transfers this data via network mail to the Capacity Planning (CP) National Database.

The information in the CP National Database is fully accessible by all sites through the national FORUM system. Menus and options are provided nationally giving the site the ability to review the growth trends of their database, software, and files.

2 Functional Description and Use of Software

The Statistical Analysis of Global Growth (SAGG) software is a fully automated support tool developed by the Capacity Planning (CP) team, which entails the monthly capture of global database, software, and file size information from participating sites.

This version of the software can be installed over any previous versions of SAGG without any adverse problems. The current version of the software is compatible with Caché for Windows and Caché for VMS operating systems.

Installing the SAGG Project software creates the collection process mechanism and other necessary components of the software. The fully automated data collection cycle entails capturing all production global, software, and file specifics at the site into a temporary ^XTMP("KMPS") collection global. Once collected, the information is converted into an electronic mail message that is automatically transferred via network mail and merged into a Capacity Planning (CP) National Database. The temporary collection global is then deleted from the site's system. The site also receives a summary of the global statistical data in the form of an electronic turn-around message.

IRM staff uses the options that are locally available at the site to manage this software. IRM staff responsible for capacity management tasks at the site can also use the options available on FORUM. The options on FORUM allow them to review growth trends of their database, software, and file size.

2.1 System Requirements

2.1.1 Software Dependencies

The original distribution of the Statistical Analysis of Global Growth (SAGG) software 2.0, Patch KMPS*2*0, was dependent on Patches KMPD*2.0*6 and XU*8.0*456. Patch KMPS*2*0 is a Kernel Installation and Distribution System (KIDS) software release. SAGG Installation Instructions can be found in the description for Patch KMPS*2*0, located on the Patch Module (i.e., Patch User Menu [A1AE USER]) on FOURM.

2.1.2 Upgrading from a Previous Version of SAGG Related to Patch XU*8.0*456



CAUTION: If your site is upgrading from a previous version of SAGG, Patch XU*8.0*456 *must* be installed for SAGG 2.0 to work with Caché 5.2.

2.1.3 Virgin Installations of SAGG Related to Patch XU*8.0*456



CAUTION: If your site is installing SAGG for the first time, Patch XU*8.0*456 *must* be installed for the SAGG Master Background Task Option [KMPS SAGG REPORT] to work.

2.2 Software Management

The SAGG software is managed locally by IRM staff through the SAGG Project Manager Menu [KMPS SAGG MANAGER], which is located under the Capacity Management menu [XTCM MAIN]. The XTCM MAIN menu is found under the Kernel Eve menu and should be assigned to IRM staff members who support this software and other capacity planning tasks.

Additionally, these same IRM staff members should also have the SAGG Access to Albany CIOFO Menu [A1B9 IFO FORUM TO IFO ALBANY] assigned to them on FORUM. This menu allows them to review growth trends of their database, software, and file size.

3 SAGG Project Manager Menu

This section describes the SAGG Project Manager Menu [KMPS SAGG MANAGER] that is located locally at the site. This menu helps the site manage the SAGG (Statistical Analysis of Global Growth) Project. This is broken down by the individual options with a discussion of each option and examples of user interaction. This portion should be thought of and used as a reference guide to the local options within the software.

Figure 1. SAGG Project Manager Menu options

SAGG Project Manager Menu	[KMPS SAGG MANAGER]
Check SAGG Environment	[KMPS SAGG STATUS]
Stop SAGG Collection	[KMPS SAGG STOP]

3.1 Check SAGG Environment Option

The Check SAGG Environment option [KMPS SAGG STATUS] checks the environment of the SAGG (Statistical analysis of Global Growth) Project. In addition to providing information regarding the SAGG collection routines, this option checks the status of SAGG patch installation at the site.

Figure 2. Check SAGG Environment option—Sample user dialogue and report

```

KMPD STATUS                               Jul 10, 2007 13:58:28           Page:   1 of   3
                                           Environment Check for
                                           KMPS v2.0

Current Status..... SCHEDULED

SAGG Master Background Task. KMPS SAGG REPORT
QUEUED TO RUN AT..... AUG 04, 2007@19:30 (Saturday)
RESCHEDULING FREQUENCY..... 28 days
TASK ID..... 7902547
QUEUED BY..... POSTMASTER (Active)

Temporary collection global.
^XTMP("KMPS")..... NOT Present

SAGG Project will collect metrics on ALL volumes

Enter ?? for more actions

Select Action:Next Screen// <Enter> NEXT SCREEN

KMPD STATUS                               Jul 10, 2007 13:58:28           Page:   2 of   3
                                           Environment Check for
                                           KMPS v2.0

                                           # of
File                                     Entries
-----
8970.1-SAGG PROJECT                     1

SAGG routines..... 7 Routines - No Problems

Node/CPU Data..... ISC1A1 AlphaServer ES40 (2)
                                           ISC1A2 AlphaServer ES40 (2)
                                           ISC1A3 hp AlphaServer ES80 7/1000 (4)
                                           ISC1A4 hp AlphaServer ES80 7/1000 (4)

Enter ?? for more actions

Select Action:Next Screen// <Enter> NEXT SCREEN

KMPD STATUS                               Jul 10, 2007 13:58:28           Page:   3 of   3
                                           Environment Check for
                                           KMPS v2.0

KMP-CAPMAN Mail Group..... KMPSEMPLOYEE,ONE
                                           KMPSEMPLOYEE,TWO
                                           KMPSEMPLOYEE,THREE (DISUSER)
                                           KMPSEMPLOYEE,FOUR

SAGG = Statistical Analysis of Global Growth

```

3.2 Stop SAGG Collection Option

The Stop SAGG Collection option [KMPS SAGG STOP] informs the SAGG Project collection routines to begin an orderly shutdown process. Each collection routine stops after reaching an appropriate break point.

Figure 3. Stop SAGG Collection option—Sample user dialogue and report

```
SAGG Project Status
KMPS v2.0

The 'SAGG Master Background Task' [KMPS SAGG REPORT] is
Scheduled to run as Task ID 3883 on JUN 26, 1998 @ 19:00 mailto:1998@19:00
every 28 days.

XTMP("KMPS") Global Location: VAH,VAA

The temporary collection global (i.e., ^XTMP("KMPS")) has data.

The SAGG Project routines are still running on:

    ROU, VAA, VBB, VCC

Press <RETURN> to continue: <Enter>

Do you wish to manually STOP the SAGG Project collection routines
(Y/N)? N// ?

Enter either 'Y' or 'N'.

Do you wish to manually STOP the SAGG Project collection routines (Y/N)? N// YES

The SAGG Project collection routines have been notified to
begin an orderly shut-down process.
```


3.3 SAGG Master Background Task Option

The SAGG Master Background Task option [KMPS SAGG REPORT] is *not* assigned to any menu. This option is scheduled through TaskMan to start SAGG Project's master collection routine in the background. This option should be rescheduled with the Schedule/Unschedule Options [XUTM SCHEDULE] under the Taskman Management menu for every 28 days to ensure same day-of-week collection cycles. If this option does *not* execute properly, a warning message is sent to the KMPS-SAGG mail group.

[Figure 4](#) shows an example of a typical display when using the Schedule/Unschedule Options:

Figure 4. SAGG Master Background Task option—Sample user dialogue and report

```
Select OPTION to schedule or reschedule: KMPS SAGG REPORT <Enter> (R)

                                Edit Option Schedule
Option Name: KMPS SAGG REPORT
Menu Text: SAGG Master Background Task                TASK ID: 3883
-----

QUEUED TO RUN AT WHAT TIME: JUN 26,1998@19:00
DEVICE FOR QUEUED JOB OUTPUT:
QUEUED TO RUN ON VOLUME SET:
RESCHEDULING FREQUENCY: 28D
TASK PARAMETERS:
SPECIAL QUEUEING:
COMMAND:                                Press <PF1>H for help Insert
```

Glossary

Table 3. Statistical Analysis of Global Growth glossary terms

Term	Description
BLOCK	A unit of measure of the size of the disk used by both the operating system and M platforms. Caché BLOCKS are typically 8192 bytes (8k).
CAPACITY PLANNING	The process of assessing a system's capacity and evaluating its efficiency relative to workload in an attempt to optimize system performance.
COLLECTION CYCLE	Occurs when the SAGG background task begins obtaining data regarding the size and efficiency of the globals on the monitored volume sets. Additionally, software and file information is collected. Normally, a site should schedule the collection cycle for every 28 days.
COMPLEXITY LEVEL	A ranking order for sites based on calculated workload needs. Four levels exist with 1 being the largest and 4 being the smallest type facility.
DATA BLOCK	A component of the global tree-structure that is used by the M platform to contain the actual information.
DATABASE	A set of information, consisting of at least one file, which is specific for a given purpose. The VistA database is composed of a number of VA FileMan files.
DISK MODEL RANK	A ranking order for sites based on calculated disk capacity needs.
GLOBAL	Tree-structured system of nodes containing common data. M platforms store data on the disk in the form of global arrays. A global is composed of both pointer and data blocks.
GLOBAL EFFICIENCY	Determines the amount of space used within the entire block structure of a particular global. A higher efficiency indicates that the global is compacted, and therefore, using less disk space.
GLOBAL SIZE	Determines the amount of pointer and data blocks used by a particular global.
MAP	Composed of subunits called blocks. A map consists of 400 blocks.
MODEL RANK	A ranking order for sites based on calculated VistA workload needs.
POINTER BLOCK	A component of the global tree-structure that is used by the M platform to find the location of data blocks.
SAGG	Statistical Analysis of Global Growth. A fully automated support tool developed by the Capacity Planning (CP) team, which entails the monthly capture of global, database, software, and file size information from participating sites.
SESSION NUMBER	Timestamp of when the collection cycle was run. The session number is defined from the +\$H system variable.
TURN-AROUND MESSAGE	The mail message that is returned to the KMPS-SAGG mail group detailing the database and global growth over the previous reported

Term	Description
	session.
ZEROTH NODE	The number of file entries is stored within the zeroth node of Vista software files. This information is used to determine software file growth statistics.



REF: For a list of commonly used terms and definitions, see the OI&T Master Glossary VA Intranet Website.

For a list of commonly used acronyms, see the VA Acronym Lookup Intranet Website.

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