Capacity Management Tools 3.0

Technical Manual

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Revision History

Table 1. Documentation revision history

Date	Revision	Description	Author
12/29/2015	1.2	Updated document based on Capacity Management Tools Patch KMPD*3.0*3. Software: **CM Tools 3.0**.	REDACTED (CPE): St Petersburg Field Office Technical Writer: REDACTED
10/--/2015	1.1	Corrected reports to reflect both foreground and background CPRS coversheet load timings. Software: **CM Tools 3.0**.	REDACTED (CPE): St Petersburg Field Office
09/20/2012	1.0	Initial Capacity Management (CM) Tools software and documentation release. Software: **CM Tools 3.0**.	Capacity Planning Development Team: • Development Manager—REDACTED • Developer—REDACTED • Software Quality Assurance (SQA)—REDACTED • Technical Writer—REDACTED

Patch Revisions

For the current patch history related to this software, see the Patch Module on FORUM.

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How to Use this Manual

Throughout this manual, advice and instructions are offered regarding the use of Capacity Management (CM) Tools 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:

  o The first three digits (prefix) of any Social Security Numbers (SSN) begins with either "000" or "666".

  o 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 Capacity Planning (KMPD) test patient and user names would be documented as follows:

    – KMPDPATIENT,ONE or KMPDUSER,ONE

    – KMPDPATIENT,TWO or KMPDUSER,TWO

    – KMPDPATIENT,THREE or KMPDUSER,THREE

    – KMPDPATIENT,14 or KMPDUSER,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.

  o User's responses to online prompts are **bold** typeface and highlighted in yellow (e.g., <mark>**<Enter>**</mark>). The following example is a screen capture of computer dialogue, and indicates that the user should enter two question marks:

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

  o Emphasis within a dialogue box is **bold** typeface and highlighted in blue (e.g., <mark>STANDARD LISTENER: RUNNING</mark>).

  o Some software code reserved/key words are **bold** typeface with alternate color font.

  o 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>**.

  o Author's comments are displayed in italics or as "callout" boxes.

  i   **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).

  i   **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 Capacity Management Tools software should consult the following:

- *Capacity Management Tools Installation Guide*

- *Capacity Management Tools User Manual*

- *Capacity Management Tools Technical Manual* (this manual)

- Capacity Management (CM) Tools Online Help file (i.e., CM_Tools_3_0.chm)

- 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 Capacity Management Tools manuals on the VDL.

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

1 Introduction

The Capacity Management (CM) Tools software is a fully automated support tool developed by Capacity Planning (CP) Service. CM Tools are designed for Information Resource Management (IRM) and system administrators responsible for the capacity planning functions at their site, as well as Veterans Health Information Systems and Technology Architecture (VistA) software developers.

CAUTION: *Before* installing a later version of the CM Tools GUI software, you *must* first uninstall/remove any existing/previous version of the CM Tools GUI software.

DISCLAIMER: The CM Tools 3.0 GUI software, including the CM_Tools_3_0.chm help file, has only been tested on Microsoft® Windows XP. It is not currently supported on Windows 7.

The CM Tools are used to measure system performance, data growth, Computerized Patient Record System (CPRS) coversheet load times, option and protocol execution, and provide various data reports. There are also tools for developers: global lister, error lister, routine search, and evaluate M code.

CM Tools entails the capture of all Veterans Health Information Systems and Technology Architecture (VistA) Health Level Seven (HL7) workload specifics from participating sites. This HL7 workload data is then summarized on a weekly basis and is automatically transferred via network mail (i.e., VistA MailMan) to the Capacity Planning (CP) National Database.

The Department of Veterans Affairs (VA) developed the Capacity Management Tools software in order to obtain more accurate information regarding the current and future VistA HL7 workload data at VA sites.

Installing the CM Tools software creates the collection process mechanism and other necessary components of the software. The fully automated data collection mechanism entails capturing all VistA HL7 workload specifics at the site into the ^TMP("KMPDH",$J) temporary collection global. The collection mechanism is continuously monitoring each process on the system while trapping VistA HL7 workload data.

On a nightly basis, the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] moves the data within the ^TMP("KMPDH",$J) temporary collection global to the CM HL7 DATA file (#8973.1).Upon completion, the temporary data within the ^TMP("KMPDH",$J) temporary collection global is purged.

The CM Tools Background Driver option [KMPD BACKGROUND DRIVER] monitors and trims (records deleted) the following files to ensure that the correct maximum number of day's data is maintained as determined by the appropriate CP parameters:

- CM HL7 DATA file (#8973.1)—The maximum amount of data collected is determined by the Purge HL7 Data After CP parameter.

- CP TIMING file (#8973.2)—The maximum amount of data collected is determined by the Purge Timing Data After CP parameter.

REF: For more information on the CP parameters, see the "Edit CP Parameters File" section in Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

On a nightly basis, the CM Tools Background Driver option automatically compresses the information contained within the CP TIMING file (#8973.2) into daily statistics. These daily 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.

Also, each Sunday night, the CM Tools Background Driver option automatically compresses the information contained within both the CM HL7 DATA (#8973.1) and CP TIMING (#8973.2) files 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 data is also available on Capacity Planning (CP) Service's Intranet Websites:

- Statistics—Provides statistics for each listed site:
  http://vaww.vista.med.va.gov/capman/site_statistics.asp

- Projections—Provides data trends for each listed site:
  http://vaww.vista.med.va.gov/capman/site_projections.asp

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 VistA HL7 workload data.

2   Implementation and Maintenance

After the initial setup procedures are performed as detailed in the *Capacity Management (CM) Tools Installation Guide*, 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 minimize network impact.

REF: For more information on initial setup procedures, see the "Preliminary Consideration" section in the *Capacity Management Tools Installation Guide*.

REF: For more information on CM Tools and CM Tool-related options, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

2.1   Implementation

2.1.1   Namespace

Capacity Planning (CP) Service has been given the KMP* namespace for both routines and globals. The Capacity Management Tools Software utilizes the KMP<u>D</u> namespace for its routines and global. Therefore, you should review your translation table settings to determine the proper placement for the KMP* global namespace.

2.1.2   ^KMPD Global

The Capacity Management Tools 3.0 software installation creates the ^KMPD global to store the following files:

- CP CODE EVALUATOR file (#8972.1)—Stores Code Evaluator data.

- CP DATA ELEMENTS file (#8972.3)—Static file that stores the data elements names.

- CP PARAMETERS file (#8973)—Static file.

- CM HL7 DATA file (#8973.1)—Records are trimmed nightly.

- CP TIMING file (#8973.2)—Records are trimmed nightly.

- CP REPORTS file (#8973.3)—Contains the name of the CM Tools reports available from the GUI Reports tab.

The CM HL7 DATA (#8973.1) and CP TIMING (#8973.2) files in the ^KMPD global are trimmed (records deleted) by the nightly CM Tools Background Driver option [KMPD BACKGROUND DRIVER] to contain a maximum number of day's data as determined by the appropriate CP parameters in the CP PARAMETERS file (#8973) .

REF: For more information on the CP parameters, see the "Edit CP Parameters File" section in Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

2.1.3   Check CM Tools Background Driver Option

The IRM staff should use the CP Environment Check option [KMPD STATUS] to ensure that the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] is scheduled to run daily at 1:30 a.m.

If the CM Tools Background Driver option [KMPD 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 KMPD BACKGROUND DRIVER option to run daily at 1:30 a.m.

> **CAUTION: Capacity Planning Service *strongly* recommends that the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] be scheduled to run daily at 1:30 a.m., because this background driver is the main mechanism by which the following sub-globals are purged nightly:**
>
> - **^KMPD(8973.1)—CM HL7 DATA file (#8973.1): Records are purged as prescribed by the Purge HL7 Data After CP parameter, which is stored in the HL7 WEEKS TO KEEP DATA field (#3.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**
>
> - **^KMPD(8973.2)—CP TIMING file (#8973.2): Records are purged as prescribed by the Purge Timing Data After CP parameter, which is stored in the TIMING WEEKS TO KEEP DATA field (#4.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**
>
> **Modification of the frequency and time may have adverse effects on the size of the temporary ^KMPD(8973.1) and ^KMPD(8973.2) sub-globals and on the number of entries within the CM HL7 DATA file (#8973.1) and CP TIMING (#8973.2) files.**

REF: For more information on the Background Driver option, see the "CM Tools Background Driver" section in Chapter 6, "Exported Options."

2.2 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.

2.2.1 CP Tools Manager Menu

All options for the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU] can be found under the Capacity Planning menu [XTCM MAIN]. The XTCM MAIN menu is found under the Eve menu and should be assigned to IRM staff members who support this software and other capacity planning tasks.

REF: For more information on the CP Tools Manger Menu, see the "CP Tools Manager Menu" section in Chapter 6, "Exported Options," in this manual or Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

2.2.2 CM Tools Background Driver Option

The IRM staff should first invoke the CP Environment Check option [KMPD STATUS], which is located under the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU], to ensure that the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] is scheduled to run daily at 1:30 a.m.

If the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] is *not* shown as being scheduled to run in the future, the CP Environment Check option [KMPD STATUS] prompts to queue the task every night at 1:30 a.m. Alternately, you can also use TaskMan's Schedule/Unschedule Options

option [XUTM SCHEDULE], located under the Taskman Management menu [XUTM MGR], to schedule the KMPD BACKGROUND DRIVER option to run daily at 1:30 a.m.

CAUTION: Capacity Planning Service *strongly* recommends that the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] be scheduled to run daily at 1:30 a.m., because this background driver is the main mechanism by which the following sub-globals are purged nightly:

- **^KMPD(8973.1)—CM HL7 DATA file (#8973.1): Records are purged as prescribed by the Purge HL7 Data After CP parameter, which is stored in the HL7 WEEKS TO KEEP DATA field (#3.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**

- **^KMPD(8973.2)—CP TIMING file (#8973.2): Records are purged as prescribed by the Purge Timing Data After CP parameter, which is stored in the TIMING WEEKS TO KEEP DATA field (#4.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**

Modification of the frequency and time may have adverse effects on the size of the temporary ^KMPD(8973.1) and ^KMPD(8973.2) sub-globals and on the number of entries within the CM HL7 DATA file (#8973.1) and CP TIMING (#8973.2) files.

REF: For more information on the CM Tools Background Driver option [KMPD BACKGROUND DRIVER], see the "CM Tools Background Driver" section in Chapter 6, "Exported Options," in this manual or Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

3 Files

This chapter describes the files exported with Capacity Management (CM) Tools, including the file number, file name, global location, and description of the files.

REF: For more information on the CM Tools globals, see Chapter 4, "Global Translation, Journaling, and Protection."

3.1 Files

Capacity Management Tools 3.0 exports the following files:

Table 3. CM Tools—Files

File Number	File Name	Global	File Description
8972.1	CP CODE EVALUATOR	^KMPD(8972.1	This file holds data for the Code Evaluator. The Code Evaluator allows programmers to test the efficiency of M code changes. No data comes with the file.
8972.3	CP DATA ELEMENTS	^KMPD(8972.3	This is a static file that contains the names of the data elements used by Capacity Planning. This file comes with data and should *not* be edited in any way.
8973	CP PARAMETERS	^KMPD(8973	This file was created to contain the parameters and data for the following: Current versions/patches of Capacity Planning applications: Resource Usage Monitor (RUM), Statistical Analysis of Global Growth (SAGG), and Capacity Management (CM) Tools. Start, stop, and delta times for all daily/weekly background jobs. The number of weeks to keep data: RUM, HL7, and Timing. Current facility CPU data: Node Type of CPU Number of processors Processor speed Amount of memory
8973.1	CM HL7 DATA	^KMPD(8973.1	This file stores VistA HL7 workload information. No data comes with the file.
8973.2	CP TIMING	^KMPD(8973.2	This file stores the timing statistics that are gathered when the Start/Stop

File Number	File Name	Global	File Description
			Timing Collection option [KMPD TMG START/STOP] is set to "running." During the day, timing data is saved into the temporary ^KMPTMP("KMPDT") global. Each night a background job compiles this temporary data into daily statistics and stores this data in File #8973.1 (CP Timing). The data in File #8973.1 is purged each night to ensure only 30 days of data exist. No data comes with the file.
8973.3	CP REPORTS	^KMPD(8973.3	This file contains the name of the CM Tools reports available from the GUI Reports tab. This file comes with data and should *not* be edited in any way.

3.2 Templates

Capacity Management Tools 3.0 exports the following templates:

Table 4. CM Tools—Exported templates

Template	Description
LIST MANAGER TEMPLATE [KMPD STATUS]	This template is used to display the status (environment) check for each application.

4 Global Translation, Journaling, and Protection

The following globals are distributed with the Capacity Management Tools software:

Table 5. CM Tools—Globals distributed

Global	Description
^KMPD	The ^KMPD global contains the following files: • CP CODE EVALUATOR file (#8972.1) • CP DATA ELEMENTS file (#8972.3) • CP PARAMETERS file (#8973) • CM HL7 DATA file (#8973.1) • CP TIMING file (#8973.2) Each night this global is trimmed (records deleted) automatically to contain the correct maximum number of day's data as determined by the appropriate CP parameters. This global is trimmed by the CM Tools Background Driver option [KMPD BACKGROUND DRIVER], which is scheduled to run daily at 1:30 a.m.
^KMPTMP("KMPDT")	The ^KMPTMP("KMPDT") temporary collection global contains Timing data for the CPRS Coversheet. Data within this global is compiled and moved into the CP TIMING file (#8973.2). Upon completion, the data within the ^KMPTMP("KMPDT") temporary collection global is purged. **NOTE:** Data for Foreground coversheet section loads are stored in ^KMPTMP("KMPDT","ORWCV-FT"). Data for Background coversheet section loads are stored in ^KMPTMP("KMPDT","ORWCV"). Depending on system configuration coversheet sections can be loaded in the foreground, background, or a combination of the two (*not recommended*). If a section is *not* explicitly set to dis-allow background processing then it is by default processed in the background.
^TMP("KMPDH",$J)	The ^TMP("KMPDH",$J) temporary collection global contains data that is gathered from the VistA Health Level Seven (HL7) software by the CM Tools Background Driver option [KMPD BACKGROUND DRIVER], which is scheduled to run daily at 1:30 a.m. Data within this global is compiled and moved into the CM HL7 DATA file (#8973.1). Upon completion, the data within the ^TMP("KMPDH",$J) temporary collection global is purged.

4.1   Translation

Table 6 lists the translation requirements/recommendations for the CM Tools globals:

Table 6. CM Tools—Global translation requirements/recommendations

Global	Translation
^KMPD	Mandatory, if the operating system supports this function. It is recommended that all Capacity Planning (CP) globals be translated to the same volume set (i.e., KMP*).
^KMPTMP	Mandatory, if the operating system supports this function. It is recommended that all Capacity Planning (CP) globals be translated to the same volume set (i.e., KMP*).

4.2   Journaling

Table 7 lists the journaling requirements/recommendations for the CM Tools globals:

Table 7. CM Tools—Global journaling requirements/recommendations

Global	Journaling
^KMPD	Mandatory, if the operating system supports this function.
^KMPTMP	*Not* recommended.

4.3   Protection

Table 8 lists the protection settings for the CM Tools globals:

Table 8. CM Tools—Global protection settings

Global Name	Caché Protection
^KMPD	Owner: RW Group: RW World: RW Network: RW
^KMPTMP	Owner: RW Group: RW World: RW Network: RW

5 Routines

This chapter contains a list of the routines exported with the Capacity Management Tools software (routines are listed alphabetically). A brief description of the routines is provided.

Table 9. CM Tools—Routines

Routine Name	Routine Description
KMPDBD01	This routine uses a Health Level Seven (HL7) API call to transfer HL7 data to the CM HL7 DATA file (#8973.1). This routine is called by the CM Tools Background Driver option [KMPD BACKGROUND DRIVER].
	Every Sunday night, this routine creates weekly statistics from the data within the CM HL7 DATA file (#8973.1) and uploads this information to the Capacity Planning National Database.
	This routine monitors and trims (records deleted) the following files to ensure that the correct maximum number of days data is maintained as determined by the CP parameters:
	CM HL7 DATA file (#8973.1)—The maximum amount of data collected is determined by the Purge HL7 Data After CP parameter.
	CP TIMING file (#8973.2)—The maximum amount of data collected is determined by the Purge Timing Data After CP parameter.
KMPDECH	This routine is part of the VistA Monitor program. It sends a return message from the site to the Capacity Planning National Database.
KMPDHU01 KMPDHU02 KMPDHU03	This routine compiles and compresses the Health Level Seven (HL7) data into daily and weekly statistics. These routines are called by the KMPDBD01 routine.
	Daily (every night)—These routines take data from the ^KMPTMP("KMPD" global and compress it into daily statistics and save it into the CM HL7 DATA file (#8973.1).
	Weekly (every Sunday night)—These routines upload the weekly HL7 statistical data stored in the CM HL7 DATA file (#8973.1) to the Capacity Planning National Database.
KMPDPOST	This routine schedules the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] to run every night at 1:30 a.m.
	This routine updates the CM TOOLS CURRENT VERSION field (#.02) in the CP PARAMETERS file (#8973).
	It is a post-install routine.
KMPDRDAT	This routine sends daily coversheet load data to the Capacity Planning National Database.
KMPDSS	CM Tools Status—This routine is associated with the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] and displays the current status of the CM Tools Background Driver. It is called by the CP Environment Check option [KMPD STATUS].
	This routine also shows information on the following files:
	CM HL7 DATA file (#8973.1)
	CP TIMING file (#8973.2)—Only displays information if the file has data.
	If the background task is *not* listed as being scheduled, this routine notifies users in the report output. Users should then queue the task to run every night at 1:30 a.m.
KMPDSS1	CP Status—This routine is associated with the CP Environment Check option [KMPD

Routine Name	Routine Description
	STATUS].
KMPDSSD	CM Tools Status—This routine is associated with the CP Environment Check option [KMPD STATUS] for HL7 and CM Tools-related data.
KMPDSSD1	CM Tools Status—This routine is associated with the CP Environment Check option [KMPD STATUS] for HL7 and CM Tools-related data. It includes remote users when listing members of KMP-APMAN mail group.
KMPDSSR	CP Status: Resource Usage Monitor (RUM)—This routine is associated with the CP Environment Check option [KMPD STATUS] for RUM-related data. It also checks the Statistical Analysis of Global Growth (SAGG) environment to use ListMan.
KMPDSSS	CP Status: Statistical Analysis of Global Growth (SAGG)—This routine is associated with the CP Environment Check option [KMPD STATUS] for SAGG-related data.
KMPDTM	This routine runs the Timing Monitor option [KMPD TMG MONITOR].
KMPDTP1 KMPDTP2 KMPDTP3 KMPDTP4 KMPDTP5 KMPDTP6 KMPDTP7	Report routines.
KMPDTU01 KMPDTU02 KMPDTU10 KMPDTU11 KMPDU KMPDU1 KMPDU11 KMPDU2 KMPDU3 KMPDU4 KMPDU5 KMPDU6 KMPDU7 KMPDU7A KMPDUG KMPDUG1 KMPDUG2 KMPDUGV KMPDUT KMPDUT1 KMPDUT2 KMPDUT4 KMPDUT4A KMPDUT4B KMPDUT4C KMPDUT5 KMPDUTL KMPDUTL1 KMPDUTL2	Generic utility routines that are called by varying Capacity Management Tools routines.

Routine Name	Routine Description
KMPDUTL3 KMPDUTL4 KMPDUTL5 KMPDUTL6 KMPDUTL7 KMPDUTL8	

6 Exported Options

This chapter lists and briefly describes the options that are exported with or related to the Capacity Management Tools software.

REF: For more detailed information on the Capacity Management Tools-related options, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

6.1 Options *with* Parents

Table 10 lists the options that are exported with or related to the Capacity Management Tools software. Options are listed hierarchically:

Table 10. CM Tools—Exported options *with* parents

Option Name	Option Menu Text	Type
XTCM MAIN	Capacity Planning	Menu
KMP MAIL GROUP EDIT	Capacity Planning Mail Group Edit	Action
KMPD CM TOOLS MANAGER MENU	CP Tools Manager Menu	Menu
KMPD STATUS	CP Environment Check option	Run Routine: EN^KMPDSS
KMPD TMG START/STOP	Start/Stop Timing Collection	Run Routine: SST^KMPDSS
KMPD PARAM EDIT	Edit CP Parameters File option	Run Routine: PRM^KMPDSS
KMPD TMG MONITOR	Timing Monitor option	Run Routine: KMPDTM
KMPD CM TOOLS REPORTS	CP Tools Reports	Menu
KMPD TMG REPORTS	Timing Reports	Menu
KMPD TMG AVG TTL	Average Daily Coversheet Load	Run Routine: EN^KMPDTP1
KMPD TMG HRLY TTL	Average Hourly Coversheet Load	Run Routine: EN^KMPDTP3
KMPD TMG DLY TTL DETAIL	Detailed Daily Coversheet Load	Run Routine: EN^KMPDTP2
KMPD TMG HRLY TTL DETAIL	Detailed Hourly Coversheet Load	Run Routine:

Option Name	Option Menu Text	Type
		EN^KMPDTP4
KMPD TMG TTL ALERT	Threshold Alert	Run Routine: EN^KMPDTP5
KMPD TMG TTL ALERT RT	Real-Time Threshold Alert	Run Routine: EN^KMPDTP6
KMPD TMG HRLY TTL RT	Real-Time Average Hourly Coversheet Load	Run Routine: EN^KMPDTP7

6.1.1   Capacity Planning Menu

The Capacity Planning menu [XTCM MAIN; Synonym: **CM**] is located under the Operations Management menu [XUSITEMGR], which is located under Kernel's Systems Manager Menu [Eve]. This menu holds all the currently available capacity planning options. The XTCM MAIN menu can be assigned to the IRM staff members who support this software and other capacity planning tasks.

The Capacity Planning menu-related options that are discussed in the CM Tools documentation include the following:

- Capacity Planning Mail Group Edit option
- CP Tools Manager Menu and subordinate options

6.1.2   Capacity Planning Mail Group Edit Option

The Capacity Planning Mail Group Edit option [KMP MAIL GROUP EDIT; Synonym: **CPG**] is located under the Capacity Planning menu [XTCM MAIN]. It is used to edit KMP-CAPMAN mail group. It is used to edit the KMP-CAPMAN mail group. The KMP-CAPMAN mail group is defined with the installation of the CM Tools software.

6.1.3   CP Tools Manager Menu

The CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU; Synonym: **TLS**] is located under the Capacity Planning menu [XTCM MAIN]. The CP Tools Manager Menu contains the following options:

- CP Environment Check [KMPD STATUS]
- Start/Stop Timing Collection [KMPD TMG START/STOP]
- Edit CP Parameters File [KMPD PARAM EDIT]
- Timing Monitor [KMPD TMG MONITOR]
- CP Tools Reports [KMPD CM TOOLS REPORTS]

6.1.4 CP Environment Check Option

The CP Environment Check option [KMPD STATUS; Synonym: **STA**] is located under the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU]. It allows users to check the capacity planning environment at their site. It displays data from the following areas:

- Health Level Seven (HL7)
- Resource Usage Monitor (RUM)
- Statistical Analysis of Global Growth (SAGG)
- Timing

Depending on the report data option chosen (i.e., HL7, RUM, SAGG, or Timing), this option identifies the number of entries within the following files (listed alphabetically by file name):

- CM HL7 DATA file (#8973.1)
- CP TIMING file (#8973.2)
- RESOURCE USAGE MONITOR file (#8971.1)
- SAGG PROJECT file (#8970.1)

Additionally, this option shows the reschedule frequency of the following options (listed alphabetically by option name):

- CM Tools Background Driver option [KMPD BACKGROUND DRIVER].
- RUM Background Driver option [KMPR BACKGROUND DRIVER].
- SAGG Master Background Task option [KMPS SAGG REPORT].

6.1.5 Start/Stop Timing Collection Option

The Start/Stop Timing Collection option [KMPD TMG START/STOP; Synonym: **SST**] is located under the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU]. It is used to initiate or stop the CM Tools collection routines to begin or stop collecting VistA HL7 workload data.

6.1.6 Edit CP Parameters File Option

The Edit CP Parameters File option [KMPD PARAM EDIT; Synonym: **PRM**] is located on the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU]. It allows editing of the Capacity Planning (CP) parameters in the CP PARAMETERS file (#8973).

NOTE: The VistA Monitor-related parameters (i.e., scheduled down time parameters) that are entered with the Edit CP Parameters File option [KMPD PARAM EDIT] are monitored by the CP Echo Server server-type option [KMPD ECHO].

REF: For more detailed information on the CP Echo Server server-type option [KMPD ECHO], see the "CP Echo Server" section.

6.1.7 Timing Monitor Option

The Timing Monitor option [KMPD TMG MONITOR; Synonym: **TMT**] is located on the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU]. This option updates itself automatically and displays the average number of seconds it takes Computerized Patient record System (CPRS) coversheets to load in a period of time. Data is displayed in a bar graph. The x-axis of the bar graph indicates the

hours of the day (from 0 up to 23) and the y-axis indicates the average number of seconds it takes to load CPRS coversheets. This option can be left running on a terminal continuously collecting data.

The Timing Monitor displays data for each hour of the day and each new hour as it comes up (i.e., 0–23 hours). It updates the data according to the value in the MONITOR UPDATE RATE - MINUTES field (#19.01) in the CP PARAMETERS file (#8973). If there is no entry in Field #19.01, the default is every 10 minutes. The CPRS coversheet load data is displayed in a bar graph for each hour the Timing Monitor is running. If the Timing Monitor is run continuously, the cycle repeats every 24 hours overlaying/replacing previous data and adjusting the bar graph accordingly. The bar graph is also adjusted for the latest information gathered based on the value in the MONITOR UPDATE RATE - MINUTES field (#19.01) in the CP PARAMETERS file (#8973).

The Timing Monitor also displays an Alert Message near the bottom of the screen if the average number of seconds to load a CPRS coversheet exceeds the value of the MONITOR ALERT - SECONDS field (#19.02) in the CP PARAMETERS file (#8973). If there is no entry in Field #19.02, the default is 30 seconds. Both of these parameters can be edited using the Edit CP Parameters File option [KMPD PARAM EDIT].

6.1.8   CP Tools Reports Menu

The CP Tools Reports menu [KMPD CM TOOLS REPORTS; Synonym: **RPT**] is located under the CP Tools Manager Menu [KMPD CM TOOLS MANAGER MENU]. It contains the Timing Reports [KMPD TMG REPORTS] option.

6.1.9   Timing Reports Menu

The Timing Reports menu [KMPD TMG REPORTS; Synonym: **TMG**] is located under the CP Tools Reports menu [KMPD CM TOOLS REPORTS]. It contains the following report options:

- Average Daily Coversheet Load [KMPD TMG AVG TTL]

- Average Hourly Coversheet Load [KMPD TMG HRLY TTL]

- Detailed Daily Coversheet Load [KMPD TMG DLY TTL DETAIL]

- Detailed Hourly Coversheet Load [KMPD TMG HRLY TTL DETAIL]

- Threshold Alert [KMPD TMG TTL ALERT]

- Real-Time Threshold Alert [KMPD TMG TTL ALERT RT]

- Real-Time Average Hourly Coversheet Load [KMPD TMG HRLY TTL RT]

- Reports display both Foreground and Background coversheet section timings.

6.1.10 Average Daily Coversheet Load Option

The Average Daily Coversheet Load option [KMPD TMG AVG TTL; Synonym: **AVD**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the daily average time-to-load value for the coversheet at a site. Average time-to-load values are given for either daily prime time or non-prime time periods.

6.1.11 Average Hourly Coversheet Load Option

The Average Hourly Coversheet Load option [KMPD TMG HRLY TTL; Synonym: **AVH**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the hourly average time-to-load value for the coversheet at a site over a 24-hour period.

6.1.12 Detailed Daily Coversheet Load Option

The Detailed Daily Coversheet Load option [KMPD TMG DLY TTL DETAIL; Synonym: **DTD**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the daily time-to-load values for the coversheet at a site. The report breaks the time-to-load metrics into ten second groupings.

6.1.13 Detailed Hourly Coversheet Load Option

The Detailed Hourly Coversheet Load option [KMPD TMG HRLY TTL DETAIL; Synonym: **DTH**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the hourly time-to-load values for the coversheet at a site. The report breaks the time-to-load metrics into ten second groupings.

6.1.14 Threshold Alert Option

The Threshold Alert option [KMPD TMG TTL ALERT; Synonym: **TAL**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the particular coversheet loads that had excessive time-to-load values. This report searches for a particular person, client name, or Internet Protocol (IP) address.

6.1.15 Real-Time Threshold Alert Option

The Real-Time Threshold Alert option [KMPD TMG TTL ALERT RT; Synonym: **RTA**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the particular coversheet loads that have excessive time-to-load values for TODAY (real-time). This report searches for a particular person, client name, or Internet Protocol (IP) address.

6.1.16 Real-Time Average Hourly Coversheet Load Option

The Real-Time Average Hourly Coversheet Load option [KMPD TMG HRLY TTL RT; Synonym: **RAV**] is located on the Timing Reports menu [KMPD TMG REPORTS]. It produces a report that displays the hourly average time-to-load value for the coversheet at a site over a 24-hour period.

6.2 Options *without* Parents

The following option does *not* appear on any menu:

Table 11. CM Tools—Exported options *without* parents

Option Name	Option Menu Text	Type
KMPD BACKGROUND DRIVER	CM Tools Background Driver	Run Routine: KMPDBD01

6.2.1 CM Tools Background Driver Option

The CM Tools Background Driver option [KMPD BACKGROUND DRIVER] is *not* assigned to any menu. This option is scheduled through TaskMan to start the Capacity Management Tools software's background routine.

This option compresses the CM Tools statistics located in the CM HL7 DATA file (#8973.1) into daily statistics. This option *must* be queued to run each day on off hours.

CAUTION: Capacity Planning Service *strongly* recommends that the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] be scheduled to run daily at 1:30 a.m., because this background driver is the main mechanism by which the following sub-globals are purged nightly:

- **^KMPD(8973.1)—CM HL7 DATA file (#8973.1): Records are purged as prescribed by the Purge HL7 Data After CP parameter, which is stored in the HL7 WEEKS TO KEEP DATA field (#3.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**

- **^KMPD(8973.2)—CP TIMING file (#8973.2): Records are purged as prescribed by the Purge Timing Data After CP parameter, which is stored in the TIMING WEEKS TO KEEP DATA field (#4.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].**

Modification of the frequency and time may have adverse effects on the size of the temporary ^KMPD(8973.1) and ^KMPD(8973.2) sub-globals and on the number of entries within the CM HL7 DATA file (#8973.1) and CP TIMING (#8973.2) files.

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

REF: For more information on any of these options, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

6.3 Server Options

Capacity Management Tools 3.0 exports the following server option:

Table 12. CM Tools—Exported server options

Option Name	Option Menu Text	Type
KMPD ECHO	CP Echo Server	Server: KMPDECH

REF: For more information on server options, see Chapter 11, "Server Options," in the *Kernel Systems Management Guide*.

6.3.1 CP Echo Server Option

The CP Echo Server option [KMPD ECHO] is a server-type option and is *not* assigned to any menu. This option is part of the VistA Monitor program.

The VistA Monitor allows Health Systems Implementation Training and Enterprise Support (HSITES) to determine if a site is down (*not* operating). The process is as follows:

1. A message is sent from the Capacity Planning National Database to each site every 20 minutes.

2. The message is received at the site via the CP Echo Server server-type option [KMPD ECHO].

3. The KMPD ECHO server option at the site then triggers a bulletin that sends an e-mail message back to the Capacity Planning National Database.

4. If the Capacity Planning National Database has *not* received a return message from the site (e.g., for an hour or more), and there are no entries in the SCHEDULED DOWN TIME START (#5.01) and SCHEDULED DOWN TIME STOP (#5.02) fields, then the site is considered to be in an unscheduled down time state, and a message is sent to a mail group notifying members of the situation.

6.4 Protocols

The Capacity Management Tools software does *not* export any protocols with this version.

7 Archiving and Purging

7.1 Archiving

The Capacity Management Tools software contains two files that are purged:

- CM HL7 DATA (#8973.1)
- CP TIMING file (#8973.2)

Every Sunday night, the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] monitors and trims (records deleted) the following files to ensure that the correct maximum number of day's data is maintained as determined by the appropriate CP parameters:

- CM HL7 DATA file (#8973.1)—Records are purged as prescribed by the Purge HL7 Data After CP parameter, which is stored in the HL7 WEEKS TO KEEP DATA field (#3.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].
- CP TIMING file (#8973.2)—Records are purged as prescribed by the Purge Timing Data After CP parameter, which is stored in the TIMING WEEKS TO KEEP DATA field (#4.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].

Since the Capacity Management Tools software automatically maintains a fixed amount of data at the site, archiving functions are *not* necessary and are *not* provided.

REF: For more information on the CM Tools Background Driver option and the CP parameters, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

7.2 Purging

Resource usage data is accumulated into the ^TMP("KMPDH",$J) temporary collection global and is purged (killed) daily at 1:30 a.m. by the CM Tools Background Driver option [KMPD BACKGROUND DRIVER] after being moved into the following files:

- CM HL7 DATA (#8973.1)
- CP TIMING file (#8973.2)

REF: For more information on the ^TMP("KMPDH",$J) global, see Chapter 4, "Global Translation, Journaling, and Protection."

The CM Tools Background Driver option [KMPD BACKGROUND DRIVER] monitors and trims (records deleted) the following files to ensure that the correct maximum number of day's data is maintained as determined by the appropriate CP parameters:

- CM HL7 DATA file (#8973.1)—Records are purged as prescribed by the Purge HL7 Data After CP parameter, which is stored in the HL7 WEEKS TO KEEP DATA field (#3.11) in the CP PARAMETERS file (#8973). This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].
- CP TIMING file (#8973.2)—Records are purged as prescribed by the Purge Timing Data After CP parameter, which is stored in the TIMING WEEKS TO KEEP DATA field (#4.11) in the CP

PARAMETERS file (#8973) . This parameter is edited via the Edit CP Parameters File option [KMPD PARAM EDIT].

Since the Capacity Management Tools software automatically maintains a fixed amount of data at the site, purging functions are *not* necessary and are *not* provided.

REF: For more information on the CM HL7 DATA (#8973.1) and CP TIMING (#8973.2) files, see Chapter 3, "Files."

REF: For more information on the CM Tools Background Driver option and CP parameters, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

8 Callable Routines

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

8.1 Controlled Subscription APIs

Table 13 lists the Controlled Subscription APIs for Capacity Management Tools. These are callable routines for which you *must* obtain an Integration Agreement (IA - formerly referred to as a DBIA) to use.

Table 13: Supported Capacity Management Tools for which an IA is required (Controlled Subscription APIs)

API, Description, Input Parameters/Input Variables, and Example	IA

Name: TIMING^KMPDTU11()
 	
Description: API to Start and Stop gathering Timing stats for Capacity Planning. This API is designed to allow packages to put hooks into a routine to gather timing data (how long it takes to run).
 	
Input Parameters/Input Variables:
 	
• KMPDSS: Subscript (free text) used to identify timing data.
 	
• KMPDNODE: Node name (free text).
 	
• KMPDST: Start/Stop - 1 = start timing, 2 = stop timing
 	
• KMPDHTM: Current time in $H format (optional).
 	
• KMPDUZ: Current DUZ of user (optional).
 	
• KMPDCL: Client name (free text). If *not* defined the current IO("CLNM") is used (optional).
 	
Example to Start TIMING:
 	
`>D TIMING^KMPDTU11("ORWCV","673AAA",1,$H,$G(DUZ))`
 	
Example to Stop TIMING:
 	
`>D TIMING^KMPDTU11("ORWCV","673AAA",2)`
	5003

Name: ^KMPTMP("KMPDT") -- CAPACITY PLANNING TIMING METRIC DATA **Description:** RK: Generate Capacity Planning (CP) timing metric data for capacity planning purposes. **ⓘ NOTE:** Sites *must* use the TIMING^KMPDTU11() API described above to generate timing data.	4313

9   External Relations

9.1   VistA Software Requirements

The Capacity Management Tools software relies on the following VistA software to run effectively (listed alphabetically):

Table 14. CM Tools—External Relations: VistA software

Software	Version	Patch Information
• Computerized Patient Record System (CPRS) GUI • Order Entry/Results Reporting (OE/RR)	• 23.0 • 3.0	Fully patched. ⚠️ **CAUTION: The CM Tools software loads without CPRS GUI 23 and OE/RR 3.0; however, in order to start collecting timing data and enable the data collection and report-related CM Tools software options, Patch OR*3.0*209 *must* also be installed.**
Health Level Seven (HL7)	1.6	Fully patched. ⚠️ **CAUTION: The CM Tools software loads without HL7 Patch #79 (i.e., HL*1.6*79); however, in order to start collecting HL7 statistics, HL7 Patch #79 *must* also be installed.** **HL*1.6*79 installs the $$CM^HLUCM API. The $$CM^HLUCM API contains code that enables the collection of HL7 usage information from the VistA environment.**
Resource Usage Monitor (RUM)	2.0	Fully patched.
Statistical analysis of Global Growth (SAGG)	1.8	Fully patched.
Kernel	8.0	Fully patched.
Kernel Toolkit	7.3	Fully patched.
MailMan	8.0	Fully patched.
RPC Broker Client Agent (i.e., CLAGENT.exe)	1.0	Fully patched. ℹ️ **NOTE:** The CLAGENT.exe *must* be running in the background. This software is distributed with the CPRS GUI software.
VA FileMan	22.0	Fully patched.

NOTE: These software applications *must* be properly installed and *fully* patched prior to installing CM Tools 3.0. You can obtain all released GUI and VistA M server software via the Product Support (PS) Anonymous Directories.

VistA M server patches (including patch description and installation instructions) are available from the Patch module on FORUM or through normal procedures. Patches *must* be installed in published sequence.

9.2 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 Capacity Management (CM) Tools software is *not* dependent on any agreements.

9.2.1 IAs—Current List for CM Tools as Custodian

To obtain the current list of IAs, if any, to which the CM Tools software (KMPD) is a custodian, perform the following procedures:

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 TOOLS** or **KMPD**.

7. All current IAs to which the Capacity Planning (CP) Service's CM Tools software is a custodian are listed.

9.2.2 IAs—Detailed Information

To obtain detailed information on a specific integration agreement, perform the following procedures:

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.

9.2.3 IAs—Current List for CM Tools as Subscriber

To obtain the current list of IAs, if any, to which the CM Tools software (KMPD) is a subscriber, perform the following procedures:

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 **KMPD** (uppercase). When prompted with "GO TO SUBSCRIBING PACKAGE," enter **KMPD** (uppercase).

7. All current IAs to which the Capacity Planning (CP) Service's CM Tools software is a subscriber are listed.

10 Internal Relations

10.1 Option Dependencies

All options in the Capacity Management Tools software under the CP Tools Manager Menu [KMPD 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 CM Tools Background Driver option [KMPD BACKGROUND DRIVER].

REF: For more information regarding the Capacity Management Tools options, see Chapter 3, "CM Tools: Options," in the *Capacity Management Tools User Manual*.

10.2 Relationship of CM Tools Software with VistA

10.2.1 CPRS GUI 23.0 and OE/RR 3.0

This version of Capacity Management Tools software loads without CPRS GUI 23 and OE/RR 3.0; however, in order to start collecting timing data and enable the data collection and report-related CM Tools software options, Patch OR*3.0*209 *must* also be installed.

REF: For more information on the CM Tools report-related software options, see the "Timing Reports" section in Chapter 6, "Exported Options."

10.2.2 HL7 1.6

This version of Capacity Management Tools software loads without VistA Health Level Seven (HL7) Patch HL*1.6*79; however, in order to start collecting HL7 statistics, HL7 Patch #79 *must* also be installed.

HL7 Patch #79 created the following three APIs, which are used for calculating the volume of HL7 activity at a site over a user-defined period of time:

- $$CM^HLUCM
- $$CM2^HLUCM
- $$CM2F^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.

REF: For more information regarding VistA HL7 Patch HL*1.6*103 and the APIs, see the HL*1.6*103 patch description in the Patch Module on FORUM.

10.3 VistA Monitor

The VistA Monitor allows Health Systems Implementation Training and Enterprise Support (HSITES) to determine if a site is down (*not* operating). The Capacity Planning National Database sends a message every 20 minutes to all sites. The message is received at each site via the CP Echo Server server-type option [KMPD ECHO]. A turn-around message is then sent from the site to the Capacity Planning National Database.

REF: For more information on the VistA monitor and the CP Echo Server server-type option, see the "Edit CP Parameters File" section in Chapter 3, "CM Tools Options," in the *Capacity Management Tools User Manual*.

10.4 Namespace

Capacity Planning (CP) Service has been given the KMP* namespace for both routines and globals. The Capacity Management Tools software utilizes the KMPD namespace for its routines and global. Therefore, you should review your translation table settings to determine the proper placement for the KMP* global namespace.

11 Software-wide and Key Variables

The Capacity Management Tools software does *not* employ the use of software-wide or key variables.

12 SAC Exemptions

The Capacity Management (CM) Tools software falls under the Kernel software umbrella; therefore, CM Tools has the same Kernel Programming Standards and Conventions (SAC) exemptions (e.g., exemptions to use operating system-specific variables and functions).

13 Software Product Security

13.1 Security Management

There are *no* special legal requirements involved in the use of the Capacity Management Tools software.

13.2 Mail Groups and Alerts

13.2.1 Mail Groups

This version of the Capacity Management Tools software creates the following mail group:

Table 15. CM Tools—Mail Groups

Name	Description
KMP-CAPMAN	This mail group receives messages for all Capacity Management-related software (e.g., Capacity Management Tools, SAGG, and RUM).

13.2.2 Alerts

This version of the Capacity Management Tools software does *not* make use of alerts.

13.2.3 Bulletins

Capacity Management Tools 3.0 creates the following bulletin:

Table 16. CM Tools—Bulletins

Name	Subject	Message	Parameters
KMPD ECHO	CP Echo Server Error	The 'CP Echo Server' [KMPD ECHO] encountered an error.	The following parameters are included in this bulletin: • Date/Time: |1|—The date and time (in human-readable format) when the server request was received. • Sender: |2|—The name of the sender of the server request. • Option name: |3|—The name of the option that was requested by Mailman. • Subject: |4|—The subject of the message that requested a server. • Message #: |5|—The internal number of the message requesting a server. • Comments: |6|—Comments appended to the bulletin. These may include errors trapped by the server software or operating system, as well as general purpose messages.

13.3 Remote Systems

This version of the Capacity Management Tools software transmits the following to the Capacity Planning National Database located at the Albany OI Field Office:

- **VistA Health Level Seven (HL7) Workload Information**—VistA HL7 workload data is summarized and transmitted on a weekly basis.

- **VistA Timing Data**—Timing data is summarized and transmitted on a daily and weekly basis.

Data collected is automatically transferred via network mail (i.e., VistA MailMan) to the Capacity Planning National Database. The data is displayed graphically on the Capacity Planning Statistics Intranet website.

REF: For more information on the Capacity Planning National Database and data display, see the "Statistics and Projections"section in Chapter 2, "CM Tools: Software Overview and Use," in the *Capacity Management Tools User Manua*l.

13.4 Interfacing

No *non*-VA products are embedded in or required by this version of the Capacity Management Tools software, other than those provided by the underlying operating systems.

13.5 Electronic Signatures

There are *no* electronic signatures used within this version of the Capacity Management Tools software.

13.6 Security Keys

There are *no* specific security keys exported with this version of the Capacity Management Tools software.

13.7 File Security

This version of the Capacity Management Tools software establishes the following security over its files:

Table 17. CM Tools—VA FileMan file protection

File Number	File Name	DD	RD	WR	DEL	LAYGO	AUDIT
8972.1	CP CODE EVALUATOR	@	@	@	@	@	@
8972.3	CP DATA ELEMENTS	@	@	@	@	@	@
8973	CP PARAMETERS	@	@	@	@	@	@
8973.1	CM HL7 DATA	@	@	@	@	@	@
8973.2	CP TIMING	@	@	@	@	@	@
8973.3	CP REPORTS	@	@	@	@	@	@

13.8 Official Policies

There are no special legal requirements involved in the use of the Capacity Management Tools software interface.

Distribution of the Capacity Management Tools software is unrestricted.

Glossary

Table 18. Capacity Management Tools glossary terms

Term	Description
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.)
CM TOOLS	**C**apacity **M**anagement Tools. A fully automated support tool developed by Capacity Planning (CP) Service, which entails the daily capture of VistA HL7 workload information from participating sites.
COVERSHEET	The Computerized Patient Record System (CPRS) coversheet, which is the main CPRS page. This main page is a screen of the CPRS patient chart that displays an overview of the patient's record.
PRIME TIME HOURS	Prime time hours are 8:00 a.m. to 5:00 p.m. (17:00) Monday through Friday, *excluding* holidays. Non-prime time hours are all other hours (i.e., weekends, nights and holidays).

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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