



KERNEL INSTALLATION GUIDE

Version 8.0

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Department of Veterans Affairs
VistA Health Systems Design & Development (HSD&D)
Infrastructure and Security Services (ISS)

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
07/95	1.0	Initial Kernel V. 8.0 software and documentation release	REDACTED
01/04/05	2.2	<p>Kernel V. 8.0 documentation reformatting/revision.</p> <p>This is the initial complete reformatting of the <i>Kernel Installation Guide</i> since its original release in July 1995.</p> <p>Reviewed document and edited for the "Data Scrubbing" and the "PDF 508 Compliance" projects.</p> <p>Data Scrubbing—Changed all patient/user TEST data to conform to HSD&D standards and conventions as indicated below:</p> <ul style="list-style-type: none">• The first three digits (prefix) of any Social Security Numbers (SSN) start with "000" or "666."• Patient or user names are formatted as follows: NHEPATIENT,[N] or NHEUSER,[N] respectively, where the N is a number written out and incremented with each new entry (e.g., NHEPATIENT, ONE, NHEPATIENT, TWO, etc.).• Other personal demographic-related data (e.g., addresses, phones, IP addresses, etc.) were also changed to be generic. <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>	REDACTED

Revision History

02/08/07	2.3	Changed Kernel document title references to: <ul style="list-style-type: none">• <i>Kernel Developer's Guide</i> (previously known as the <i>Kernel Programmer Manual</i>).• <i>Kernel Systems Management Guide</i> (previously known as the <i>Kernel Systems Manual</i>).	Oakland, CA OIFO: <ul style="list-style-type: none">• REDACTED

Table i: Documentation revision history

Patch Revisions

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

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Orientation

How to Use this Manual

Throughout this manual, advice and instruction are offered about the installation, numerous tools, and functionality that Kernel V. 8.0 provides for overall Veterans Health Information Systems and Technology Architecture (VistA) management. This guide also includes information about software application management (e.g., recommended settings for site parameters and scheduling time frames for tasked options).



CAUTION: To protect the security of VistA systems, distribution of this software for use on any other computer system by VistA sites is prohibited. All requests for copies of Kernel for non-VistA use should be referred to the VistA site's local Office of Information Field Office (OIFO).

Otherwise, there are no special legal requirements involved in the use of Kernel.

The Kernel Installation Guide is divided into two major sections, based on the following installation types:

- I Installing Kernel V. 8.0 in a V. 7.1 Environment.
- II Virgin Installations.



REF: For information on developer tools (e.g., Direct Mode Utilities and Application Program Interfages [APIs]), please refer to the *Kernel Developer's Guide*. Kernel and Toolkit APIs are also available in HTML format at the following Web address:

<http://vista.med.va.gov/kernel/apis/index.shtml>

Information on recommended system configuration and setting Kernel's site parameters, as well as lists of files, routines, options, and other components are documented in the *Kernel Technical Manual*.

Information about managing computer security, which includes a detailed description of techniques that can be used to monitor and audit computing activity, is presented in the *Kernel Security Tools Manual*.

This manual is further organized into the following sections:

- 1. Advance Preparation
- 2. Installation Instructions
- 3. Post-Installation Tasks

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
	NOTE/REF: Used to inform the reader of general information including references to additional reading material.
	CAUTION/DISCLAIMER: 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).
- Conventions for displaying TEST data in this document are as follows:
 - The first three digits (prefix) of any Social Security Numbers (SSN) will begin with either "000" or "666".
 - Patient and user names will be formatted as follows: [Application Name]PATIENT,[N] and [Application Name]USER,[N] respectively, where "Application Name" is defined in the Approved Application Abbreviations document and "N" represents the first name as a number spelled out and incremented with each new entry. For example, in Kernel (KRN) test patient and user names would be documented as follows: KRNPATIENT,ONE; KRNPATIENT,TWO; KRNPATIENT,THREE; etc.
- Sample HL7 messages, "snapshots" of computer online displays (i.e., character-based screen captures/dialogues) and computer source code are shown in a *non*-proportional font and enclosed within a box. Also included are Graphical User Interface (GUI) Microsoft Windows images (i.e., dialogues or forms).
 - User's responses to online prompts will be boldface.
 - 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 in many places 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 will be considered an alternate name. This manual uses the name M.
- Descriptions of direct mode utilities are prefaced with the standard M ">" prompt to emphasize that the call is to be used *only in direct mode*. They also include the M command used to invoke the utility. The following is an example:

```
>D ^XUP
```

- 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 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.

How to Obtain Technical Information Online

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



NOTE: Methods of obtaining specific technical information online will be indicated where applicable under the appropriate topic.

REF: Please refer to the *Kernel Technical Manual* for further information.

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 submenu in VA FileMan to print formatted data dictionaries.



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

This manual provides an overall explanation of Kernel and the functionality contained in Kernel V. 8.0. 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) and VA Intranet 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 Intranet Web address:

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

Reference Materials

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

- *Kernel Release Notes*
- *Kernel Installation Guide* (this manual)
- *Kernel Systems Management Guide*
- *Kernel Developer's Guide*
- *Kernel Technical Manual*
- *Kernel Security Tools Manual*
- Kernel Home Page at the following Web address:

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

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

If the reader is not already familiar with VA FileMan or MailMan, the respective user, developer, and technical manuals for each should be obtained and reviewed. Other source documents describing overall VistA policy are:

- *VA Programming Standards and Conventions (SAC)*
- *MIRMO/OIFO Operations Document*

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 (i.e., ACROREAD.EXE), which is freely distributed by Adobe Systems Incorporated at the following Web address:

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



REF: 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>

VistA documentation can be downloaded from the Health Systems Design and Development (HSD&D) VistA Documentation Library (VDL) Web site:

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

VistA documentation and software can also be downloaded from the Enterprise VistA Support (EVS) anonymous directories:

- Albany OIFO REDACTED
- Hines OIFO REDACTED
- Salt Lake City OIFO REDACTED
- Preferred Method REDACTED

This method transmits the files from the first available FTP server.



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

1. Introduction

The purpose of this guide is to provide instructions for installing Kernel V. 8.0 (Version 8.0). It outlines the steps necessary to upgrade a computer system from Kernel V. 7.1 to Kernel V. 8.0. In addition, it describes how to install Kernel V. 8.0 on a computer system that does not have a pre-existing version of the Kernel.

Kernel V. 8.0 is installed using a new installation system, Kernel Installation and Distribution System (KIDS). KIDS is new with Kernel V. 8.0, and is a replacement for the previous export and installation system, VA FileMan's DIFROM.

Installation instructions are provided in this guide for the two VA centrally procured operating systems: DSM for OpenVMS and MSM-DOS.

Installation guidelines for other supported M systems (Intersystems M/SQL, DataTree DTM-PC, and MSM-Unix), are provided in an appendix. Kernel no longer actively supports M implementations that aren't expected to support the proposed 1995 ANSI M standard. Implementations in this category are DSM-11, M11+, and M/VX.

In these instructions, "VAH" refers to the Production Account and "MGR" refers to the Library or Manager Account. You may use different names at your site and could pencil them in to avoid confusion later on. Also, for MSM-DOS, a volume set is called a volume group.

2. Preliminary Considerations

Disk Space

The Kernel distribution (host file) occupies approximately 4 megabytes of storage space. When the distribution is loaded (into ^XTMP), it occupies approximately 3.3 megabytes. When the Kernel installation is completed, the distribution is purged from the ^XTMP global. The 3.3 megabytes from the ^XTMP global is distributed among Kernel's routines and files by the Kernel installation.

Kernel Components with Separate Installation Procedures

The following Kernel components have their own installation procedures, separate from the main Kernel installation described in this manual:

- File Access Security System (formerly known as Part 3)
- Files for running TaskMan in a DCL context

The conversion procedure to install Kernel's File Access Security system is described in the File Access Security chapter of the *Kernel Systems Management Guide*.



REF: For information on how to set up Task Manager to run in a DCL Context, please refer to the Task Manager System Management: Configuration chapter of the *Kernel Systems Management Guide*.

Movement of Kernel Site Parameters

The Kernel V. 8.0 installation moves the Kernel Site Parameters out of ^XMB. They are moved from the MAILMAN SITE PARAMETERS file (#4.3) to the KERNEL SYSTEM PARAMETERS file (#8989.3), which is stored in ^XTV. File #4.3 remains, containing MailMan's site parameters.

One result of this is that any "Class 3" software that directly modifies the introductory text needs to be aware of its location (in the KERNEL SYSTEM PARAMETERS file [#8989.3]).

Movement of Option Scheduling Information

Kernel V. 8.0 moves option scheduling information out of the OPTION file (#19) and into the OPTION SCHEDULING file (#19.2). This provides greater flexibility by allowing a single option to be put on multiple schedules. One issue to note is that after the conversion, to schedule an option, the option's SCHEDULING RECOMMENDED field *must* be set to YES in the OPTION file (#19).

File Access Security Conversion

The File Access Security Conversion (formerly known as Part 3 of the Kernel installation) need not have been run prior to the Kernel V. 8.0 installation. If you have already run the conversion, there is no need to rerun it. Instructions for running the File Access Security Conversion are provided in the File Access Security chapter of the *Kernel Systems Management Guide*. Instructions are not included in the Installation Guide since the conversion is not normally run during the Kernel install.

MICOM Software Support Discontinued

Kernel V. 8.0 no longer supports the MICOM Software that was exported by previous versions of Kernel. While you may continue using this software, it is no longer supported by Kernel, and is no longer considered part of Kernel.

Impact on Journaling

The Kernel installation should not have a significant impact on journaling usage. Kernel does not bring in a significant quantity of data. Three significant conversions are performed:

- Option scheduling is moved out of the OPTION file (#19).
- Alerts are moved out of the NEW PERSON file (#200).
- Kernel site parameters are moved out of the MAILMAN SITE PARAMETERS file (#4.3).

None of these conversions should have a major impact on journaling usage.

Installing Kernel Toolkit After Installing Kernel V. 8.0

You can install Kernel Toolkit V. 7.3 after installing Kernel V. 8.0. If you do this, note the important instructions regarding Kernel V. 8.0 sites in Kernel Toolkit's Preliminary Considerations section (*Kernel Toolkit Installation Guide*). In particular:

- Do *not* install Kernel 7.1 patch #40.
- Do clean up your production account to remove any remaining unused Kernel manager account routines (ZTMGRSET, ZOSV*, ZOSF*, ZTBK*). This prevents these old routines from overwriting newer manager account routines later in the Kernel Toolkit V. 7.3 installation, when you are asked to move Kernel Toolkit routines from the production to the manager account.



CAUTION: You should *never* install Kernel Toolkit V. 7.2 on top of Kernel V. 8.0 (doing so would break Kernel V. 8.0). Since a virgin installation of Kernel Toolkit can be done with Kernel Toolkit V. 7.3, there is no reason at all to ever load Kernel Toolkit V. 7.2 on top of Kernel V. 8.0.

External Relations

Kernel V. 8.0 requires one of the following M implementations to be in place:

- DSM for OpenVMS, version 6.3 or greater.
- Micronetics MSM-DOS, version 4.09 or greater.



REF: For more information on support for other operating systems, please refer to "Appendix A: Installing Kernel on Other Platforms" in this manual.

A non-virgin installation of Kernel V. 8.0 requires that the following minimal software *must* already be installed on the target (core) system:

- Kernel V. 7.1 or higher.
- Kernel Toolkit V. 7.2 or V. 7.3.
- MailMan V. 7.0 or higher.
- VA FileMan V. 21 (with patch DI*21*6 applied) or higher.

A virgin installation of Kernel V. 8.0 requires that the following software *must* be installed or available to install as follows:

- VA FileMan V. 21 (already installed, with patch DI*21*6 applied) or higher.
- Kernel Toolkit V. 7.3 (available to install).
- MailMan V. 7.1 or higher (available to install).

Skills Required to Perform the Installation

Instructions for performing these functions are provided in vendor-supplied operating system manuals as well as VistA publications.



REF: VAX DSM instruction is provided in the *VAX DSM Systems Guide* (Cookbook).

MSM-DOS instruction is provided in the *486 Cookbook* and *MSM System Managers Guide*.

NOTE: DSM for OpenVMS configurations for Alpha sites are very similar to the configurations for VAX sites.

- Log onto the system console.
- Shutdown and bring up (boot) the system.
- Backup the system; enable/disable journaling.
- Create directories on the host file system.
- Copy files using commands of the host file system
- Switch UCIs from manager (MGR) to production (VAH).
- Load routines, from diskettes, tapes, SDP space, and/or host files.
- Enable/disable routine mapping.
- Manage globals, including global placement, protection, translation, and journaling characteristics.
- Run a system status and restore a job.
- Use ScreenMan and ScreenMan forms to edit data in a file.

3. Installing Kernel V. 8.0 in a V. 7.1 Environment

This section describes how to install Kernel V.8.0 in a Kernel V.7.1 environment.



REF: If you are running on platforms other than DSM for OpenVMS or MSM-DOS, please refer to "Appendix A: Installing Kernel on Other Platforms" in this manual.

I. Advance Preparation

Items listed in the Advance Preparation section are tasks that need to be performed in order for Kernel to install successfully. These tasks, however, can and should be performed prior to the *main* installation of Kernel. They can be performed without disabling access to the system or impacting the running system (with possible exception of the last item, backing up the system).

1. Confirm Distribution Files for Kernel V. 8.0

You should receive the following files with Kernel V. 8.0:

Name	Approx. Size (Kilobytes)	Description
KIDS8.RTN	100K	Standalone KIDS routines.
KRN8.KID	4000K	Kernel V. 8.0 Distribution.
KRN8.MGR	265K	Kernel Manager account routines.
The following files only apply for DSM for OpenVMS sites:		
ZTMSWDCL.COM	1K	DCL command file for running TaskMan in a DCL Context.
ZTMWDCL.COM	1K	DCL command file for running TaskMan in DCL Context.

Table 3-1: Kernel V. 8.0 distribution files

2. Set Up HFS Device Named "HFS"

For KIDS to install software, you *must* set up an HFS device, and you *must name the device* "HFS".



REF: For assistance creating HFS devices, please refer to the section on HFS Devices in the "Host Files" chapter of the *Kernel Systems Management Guide*.

3. Place ^XPD and ^XTMP

Kernel V. 8.0 brings in a new global, ^XPD. This global is used by KIDS for the BUILD (#9.6) and INSTALL (#9.7) files. These files are relatively static, since they are only updated during KIDS installations. The storage space used would typically be less than 200 kilobytes per installation,

depending on the size and complexity of the software being installed. Information in these files can be purged once an installation completes.

In VAH: Place the ^XPD global in an appropriate volume set on your system. Translate ^XPD across all CPUs.

In VAH: If ^XTMP is not already placed, it should be placed as well. ^XTMP is the storage location for interprocess temporary data, and should be translated across all CPUs. It is a dynamic global.

4. If You Are Not Using the MICOM: K ^%ZIS("H")

In previous versions of Kernel, a set of routines, options, and files was distributed to facilitate using the MICOM port contention device. Kernel has discontinued support for the MICOM.

One part of Kernel's support for the MICOM involved setting a string of code in the global node ^%ZIS("H"). The value of this node varied, depending on what operating system was in use at your site.

If your site is no longer using the MICOM, kill ^%ZIS("H"), if that node is defined:

```
> W ^%ZIS("H")
Q
> K ^%ZIS("H")
>
```

Figure 3-1: MICOM sites: Kill ^%ZIS("H")

If your site configuration has multiple copies of the ^%ZIS global, kill ^%ZIS("H") in every copy of ^%ZIS.

5. Check if Any Kernel Files Have VA FileMan Audits

You should check to see if any Kernel files have VA FileMan audits enabled. If so, you should consider disabling the audits while running the Kernel installation (for performance and disk usage reasons).



REF: A list of Kernel files is provided in the *Kernel Technical Manual*.

6. Review Global Protection, Translation and Journaling

Check the global protection, translation, and journaling characteristics of the Kernel globals on your system. An outline of a possible scheme for the management of Kernel globals is presented on the following pages.



REF: Cookbook recommendations should also be consulted:

DSM for OpenVMS:

Refer to the most recent *VAX DSM Systems Guide* (otherwise known as the VAX Cookbook) for recommendations concerning global characteristics.

MSM-DOS:

Refer to the most recent *486 Cookbook and MSM System Managers Guide* for recommendations concerning global characteristics.

Kernel's recommendations and the cookbooks' recommendations should serve as examples as you manage your site's global configuration.

Globals in MGR:



NOTE for MSM-DOS: Kernel recommends that the manager's account should be set up on all servers: file, shadow, compute, and print. Previously, the Kernel manager's account setup was only recommended for print and compute servers. Global characteristics for manager's account globals should be reviewed accordingly, on all servers.

	Protection			
Global Name	DSM for OpenVMS	MSM-DOS	Translate?	Journal?
^%ZIS	System: RWP World: RW Group: RW UCI: RWP	All: RWD	Yes	
^%ZISL	System: RWP World: RW Group: RW UCI: RWP	All: RWD	Yes	
^%ZOSF	System: RWP World: R Group: R UCI: RWP	System: RWD World: R Group: R User: RWD	Separate Copy per CPU	
^%ZTER	System: RWP World: RW Group: RW UCI: RWP	All: RWD	Yes	

	Protection			
Global Name	DSM for OpenVMS	MSM-DOS	Translate?	Journal?
^%ZTSCH	System: RWP World: RW Group: RW UCI: RWP	All: RWD	Yes *	
^%ZTSK	System: RWP World: RW Group: RW UCI: RWP	All: RWD	Yes *	
^%ZUA	System: RWP World: R Group: RW UCI: RW	System: RWD World: RW Group: RW User: RWD	Yes	Yes

Table 3-2: Global settings in MGR

- * There should be only one copy of the TaskMan globals (^%ZTSCH and ^%ZTSK) within TaskMan's reach. At VA sites, TaskMan's reach is across all CPUs. Other sites should evaluate TaskMan's reach in their configurations.



REF: For more information about TaskMan's reach, please refer to the *Kernel Systems Management Guide*.

NOTE: Also, at DSM for OpenVMS sites, these globals should not be in a volume set that is cluster mounted across all systems; instead, master from two nodes and DDP serve to the other nodes.

Globals in VAH:

	Protection			
Global Name	DSM for OpenVMS	MSM-DOS	Translate?	Journal?
^DIC	System: RWP W/G/U: RW	All: RWD	Yes	See VA FileMan Technical Manual
^HOLIDAY	System: RWP W/G/U: RW	All: RWD	Yes	
^TMP	System: RWP W/G/U: RW	All: RWD	Separate Copy per CPU	
^UTILITY	System: RWP W/G/U: RW	All: RWD	Separate Copy per CPU	

	Protection			
Global Name	DSM for OpenVMS	MSM-DOS	Translate?	Journal?
^VA	System: RWP W/G/U: RW	All: RWD	Yes	Yes
^XMB	System: RWP W/G/U: RW	All: RWD	Yes	See MailMan Technical Manual
^XMBS	System: RWP W/G/U: RW	All: RWD	Yes	See MailMan Technical Manual
^XPD	System: RWP W/G/U: RW	All: RWD	Yes	
^XTV	System: RWP W/G/U: RW	All: RWD	Yes	Yes
^XTMP	System: RWP W/G/U: RW	All: RWD	Yes	
^XUSEC	System: RWP W/G/U: RW	All: RWD	Yes	
^XUTL	System: RWP W/G/U: RW	All: RWD	Separate Copy per CPU	

Table 3-3: Global settings in VAH

7. Clean the Task Files (optional)

For non-virgin installations: So that the post-install can run more quickly, you can optionally purge the task files using the ZTMCLEAN option (i.e., Clean Task File option) on the TaskMan Management Utilities menu. Run this option on each volume set where the TaskMan globals are located.

8. Identify and Save Locally Modified Routines

If anyone at your site has created any routines within the Kernel namespaces, these routines *must* be saved under a local namespace or they will be overwritten by the incoming Kernel routines. Local development should not use the Kernel namespaces (X*, Z* subtracting out ZZ*), but it would be well to check your accounts beforehand. This check could be done by running the %ZTP1 routine (D ^%ZTP1) to list the first lines of the Kernel routines. Check both the production and the manager's accounts.

Also, if you have customized your ^%ZTMSH routine for customized TaskMan header pages, save it in a local namespace and then restore it after the installation.

9. Print Out Current Scheduling Information

Kernel V. 8.0 moves option scheduling information out of the OPTION file (#19) and into the OPTION SCHEDULING file (#19.2). Ordinarily, options will be on the same schedule after the conversion as they were on before the conversion. You may want to print out your current scheduling information from the OPTION file (#19) anyway, in advance of the installation. Then you will be able to compare it to the information in the OPTION SCHEDULING file (#19.2) after the conversion.

10. Back Up System as a Safeguard before the Installation

You should back up your system before doing the main Kernel installation. It is best to make a backup just before performing the Kernel main installation.

Optionally, you may also want to save a list of your Kernel routines by running a routine directory (D ^%RD) for the Kernel namespaces (X*, Z* subtracting out XM* and ZZ*).

Once you have performed the steps in the "Advance Preparation" section, you are ready to begin the Kernel V. 8.0 main installation.

II. Installation Instructions

This section describes how to perform the main installation for Kernel V. 8.0. All users and running tasks *must* be shut down as part of the main installation. No users should use the system, nor should any tasks be allowed to run, for the duration of the Kernel V. 8.0 main installation.

1. Log On

BEGIN THE INSTALLATION IN THE PRODUCTION ACCOUNT (e.g., VAH)

- **Log on Using the Console**

Log on using the console, since normal logons will later be disabled.

DSM FOR OpenVMS:

For speed, log onto the boot node. To maneuver without access restrictions, use a privileged OpenVMS account. Also, create a large symbol table at signon, (\$ DSM/SYM=100000) so there is enough space to work.

MSM-DOS:

Log onto the print server, where TaskMan resides, so that queued post-installation tasks will run. Also, when logging on, increase the symbol table size to 100 (UCI,VOL:ROU:100) so that there is enough space to work.



CAUTION: It is assumed that you have the capability to move back and forth from the manager and production accounts. After moving to another UCI, it is useful to verify your location (with W \$ZU(0) or other technique) as a safeguard.

2. Set Up Variables

- **In VAH: Set up Variables.** Set up your DUZ and set DUZ(0) to "@" using the ^XUP and Q^DI entry points:

```
>D ^XUP  (To set DUZ when responding to the Access Code
          prompt. Press Enter at the OPTION prompt.)

>D Q^DI  (To set DUZ(0)="@")
```

Figure 3-2: Set up DUZ and DUZ(0) variables

3. Stop MailMan Background Filer

- **In VAH: Stop MailMan.** Use MailMan's STOP Background Filer option to shut down MailMan's background filer.

4. Stop TaskMan

- **In VAH: Stop TaskMan.** Use the Stop Task Manager option on the Taskman Management Utilities menu. Choose to shut down all active Submanagers once they finish their current tasks.

```
Select Taskman Management Utilities Option: Stop Task Manager

Are you sure you want to stop TaskMan? NO// Y
Shutting down TaskMan.

Should active submanagers shut down after finishing their current tasks? NO// Y
Okay!

Select Taskman Management Utilities Option:
```

Figure 3-3: Stopping TaskMan: Sample user dialogue

5. Inhibit Logons

- **In VAH: Inhibit Logons** for each Volume Set. You may have local procedures to inhibit logons. In this case, use your local procedures to inhibit logons.

In the absence of local procedures to disable logons, use VA FileMan (Q^DI entry point) to edit the INHIBIT LOGON field of each entry in the VOLUME SET file (#14.5).

```
>D Q^DI
INPUT TO WHAT FILE: VOLUME SET
EDIT WHICH FIELD: ALL// INHIBIT
THEN EDIT FIELD: <Enter>
```

Figure 3-4: Inhibiting logons—All

DSM FOR OpenVMS:

```
Select VOLUME SET: ROU// <Enter>
INHIBIT LOGON?: NO// YES
```

Figure 3-5: Inhibiting logons—DSM FOR OpenVMS

MSM DOS:

```
Select VOLUME SET: CSA// <Enter>
INHIBIT LOGON?: NO// YES

Select VOLUME SET: CSB// <Enter>
INHIBIT LOGON?: NO// YES
```

Figure 3-6: Inhibiting logons—MSM DOS

6. Kill Off Remaining Users and Tasks

- **In VAH:** Kill existing users and tasks from the system by killing off their jobs. No users or tasks should be left running on the system during the main Kernel installation. Use Kernel or operating system utilities to clear all users and tasks off of the system, including on other CPUs. The only user on the system should be the user installing Kernel V. 8.0.

NOW MOVE OVER TO THE MANAGER (LIBRARY) ACCOUNT
(e.g., MGR)

7. Disable Routine Mapping (DSM for OpenVMS Only)

- **In MGR:** Disable routine mapping (if applicable) on the current node, for library and production accounts.

You can disable routine mapping on other cluster nodes later, once you start the main installation.

DSM FOR OpenVMS:

```
>D ^RMAP
```

Figure 3-7: Disabling routine mapping—DSM FOR OpenVMS

MSM-DOS:

Not Applicable.

8. Save Old Kernel Routines (MGR)

- **In MGR:** Optionally, save the current Kernel routines from the MGR account. You can save routines to tape or host file. You will be asked to delete these routines in an upcoming step. The namespaces to save are:

XUCI*
ZT*
ZI*
ZO*
ZU*

Also, if you have customized your ^%ZTMSH routine for customized TaskMan header pages, save it in a local namespace (if you haven't already done so) and then restore it after the installation.

9. Check Global Protection for ^%ZOSF

- **In MGR:** Confirm that the ^%ZOSF global is set appropriately as illustrated below. Each CPU *must* have a separate copy of ^%ZOSF.

DSM for OpenVMS:

```
>D ^%GLOMAN

(Manage globals in which UCI? MGR)
^%ZOSF

Protection:           System      World      Group      UCI
                      RWP         R          R        RWP
```

Figure 3-8: Checking global protection for ^%ZOSF—DSM for OpenVMS

MSM-DOS:

```
>D ^%GCH

(Set Protection)
^%ZOSF

Protection:           System      World      Group      User
                      RWD         R          R        RWD
```

Figure 3-9: Checking global protection for ^%ZOSF—MSM-DOS

10. Lift Global Protection for ^%ZUA

- **In MGR:** Lift the protection on ^%ZUA to at least RW across all levels. This allows writing to ^%ZUA during the installation. You will be told to reset the protection after the main installation completes. (^%ZUA holds the logs of failed access attempts and programmer mode entries.) If each CPU has its own ^%ZUA, lift the protection across all CPUs.

DSM for OpenVMS:

```
>D ^%GLOMAN

(Manage globals in which UCI? MGR)
^%ZUA

Protection:           System      World      Group      UCI
                      RWP         RW         RW        RW
```

Figure 3-10: Lift global protection for ^%ZUA—DSM for OpenVMS

MSM-DOS:

```
>D ^%GCH

(Set Protection) (Note: no change from recommended setting!)
^%ZUA

Protection:           System      World      Group      User
                      RWD         RW         RW        RWD
```

Figure 3-11: Lift global protection for ^%ZUA—MSM DOS

11. Clean Old Kernel Routines (MGR)

It is optional but strongly recommended that you delete obsolete Kernel routines from the manager's account before loading in the new ones.

DSM for OpenVMS:

Perform this step once, for the cluster.

MSM-DOS:

Perform this step on all CPUs that have a manager's account, including *each compute server* and *each print server* (also, each file and shadow server, if those currently have Kernel routines set up in the manager's accounts).

- **In MGR:** Optionally delete Kernel routines from the Manager account. As a safeguard, you may want to back up the routines to a host file or to tape beforehand.

```
>D ^%ZTRDEL
XUCI*
ZT*
ZI*
ZO*
ZU*
```

Figure 3-12: Delete old Kernel routines in MGR

12. Load Manager Routines

DSM for OpenVMS:

Perform this step once, for the cluster.

MSM-DOS:

Perform this step on *all CPUs*, meaning each *compute*, *print*, *file*, and *shadow server*.

- **In MGR:** Restore routines from manager's account distribution file (KRN8.MGR) to the manager's account.

```

>D ^%RR

Input Device ? > KRN8.MGR

Restoring routines from KRN8.MGR

%ZIS      %ZIS1    %ZIS2    %ZIS3    %ZIS5    %ZIS6
%ZIS7     %ZISC    %ZISP    %ZISS    %ZISS1   %ZISS2
%ZISUTL   %ZTER     %ZTER1   %ZTLOAD  %ZTLOAD1 %ZTLOAD2 %ZTLOAD3
%ZTLOAD4  %ZTLOAD5  %ZTLOAD6 %ZTLOAD7 %ZTM
%ZTM0     %ZTM1     %ZTM2    %ZTM3    %ZTM4    %ZTM5
%ZTM6     %ZTMOVE   %ZTMS    %ZTMS0   %ZTMS1   %ZTMS2
%ZTMS3    %ZTMS4    %ZTMS7   %ZTMSH   XUCIDTM  XUCIMSM
XUCIMSQ   XUCIVXD   ZINTEG   ZIS4DTM  ZIS4MSM  ZIS4MSQ  ZIS4VXD
ZISEDTM   ZISETMSM  ZISETMSQ ZISETVXD ZISFDTM  ZISFMSM  ZISFMSQ
ZISFVXD   ZISHDTM   ZISHMSM  ZISHMSQ  ZISHMSU  ZISHUNT  ZISHVXD
ZISX      ZOSFDTM  ZOSFMSM  ZOSFMSQ  ZOSFVXD  ZOSV1DTM ZOSV1VXD
ZOSV2MSM  ZOSV2VXD ZOSVDTM  ZOSVMSM  ZOSVMSQ  ZOSVVXD  ZTBKCDTM
ZTBKCMSM  ZTBKCMSQ  ZTBKCVXD ZTMB     ZTMCHK   ZTMCHK1  ZTMDCL
ZTMGRSET  ZTMKU     ZTMON    ZTMON1   ZUA
>

```

Figure 3-13: Load manager routines

- **In MGR:** Run the manager's account integrity check routine (^ZINTEG) to verify the integrity of manager's routines. Report any "off-by" discrepancies to your local OIFO before proceeding with installation. Discrepancies may simply indicate that the file includes patched routines.



NOTE: The ^ZINTEG routine will be removed during the next step (running ^ZTMGRSET).

```
>D ^ZINTEG
```

Figure 3-14: Run the integrity check routine (^ZINTEG) in MGR

13. Run the Manager Setup Routine

DSM for OpenVMS:

Perform this step once, for the cluster.

MSM-DOS:

Perform this step on all CPUs, which means each *compute*, *print*, *file*, and *shadow server*.

- **In MGR:** Run the Manager Setup Routine (^ZTMGRSET).

When asked what M System to install, enter the name of the M implementation you are

running. This sets the first piece of ^%ZOSF("OS"). Alpha sites should choose VAX DSM(V6) as their OS.

^ZTMGRSET saves %-versions of all routines required for your operating system. ^ZTMGRSET also deletes all non-% routines Kernel routines in the manager's account for operating systems other than your own.



NOTE: Because of this, if you run the integrity checker routine for the manager's account *after* running ^ZTMGRSET, it should report missing routines for all operating systems other than your system's operating system.

^ZTMGRSET also asks some questions about your M accounts. Indicate the name and volume set of your Manager account; the name and volume set of your signon Production account; and the name of the current volume or directory set.

^ZTMGRSET also sets up two files stored in ^%ZUA, the Failed Access Attempt Log (#3.05) and the Programmer Mode Log (#3.07), if they're not set up already. ^ZTMGRSET also sets up TaskMan's ^%ZTSK global if it is not set up already.

```

>D ^ZTMGRSET

ZTMGRSET Version 8.0
HELLO! I exist to assist you in correctly initializing the MGR account or to
update the current account.
I think you are using VAX DSM(V6)
Which MUMPS system should I install?

1 = M/SQL
2 = VAX DSM(V6)
3 = MSM
4 = DataTree
System: 2// 2 <Enter>

I will now rename a group of routines specific to your operating system.
Loading ZOSVVXD      Saved as %ZOSV
Loading ZTBKCVXD     Saved as %ZTBKCL
Loading ZIS4VXD      Saved as %ZIS4
Loading ZISHVXD      Saved as %ZISH
Loading XUCIVXD      Saved as %XUCI
Loading ZISETVXD     Saved as %ZISETUP
Loading ZOSV1VXD     Saved as %ZOSV1
Loading ZOSV2VXD     Saved as %ZOSV2
Loading ZISFVXD      Saved as %ZISF
Loading ZTMDCL       Saved as %ZTMDCL
NAME OF MANAGER'S UCI, VOLUME SET:  MGR,ROU <Enter>
PRODUCTION (SIGN-ON) UCI, VOLUME SET:  VAH,ROU <Enter>
NAME OF VOLUME SET:  ROU <Enter>

ALL SET UP

Now I will check your % globals.....

ALL SET UP

ALL DONE
>

```

Figure 3-15: Running the manager setup routine (^ZTMGRSET)



NOTE: After ^ZTMGRSET has been run to set up the manager's account on a CPU, you can rerun it. When rerun, it does not let you enter the operating system, nor does it re-save OS-specific routines. But it does let you update the UCI and volume set information (which updates the ^%ZOSF nodes for volume set and UCI), should you need to do this.

If, on the other hand, you need to rerun ^ZTMGRSET to change the operating system information or reload OS-specific routines, you will need to restore routines first, from the manager's account routine distribution file (KRN8.MGR). Once you restore the full set of routines from the KRN8.MGR, you can then rerun ^ZTMGRSET for a given CPU, and re-answer all of its questions.

NOW MOVE BACK TO THE PRODUCTION ACCOUNT
(e.g., VAH)

14. Clean Up Old Kernel Routines (VAH)

It is optional but strongly recommended that you delete obsolete Kernel routines from the production account before the main installation loads in new ones.

DSM for OpenVMS:

Perform this step once, for the cluster.

MSM-DOS:

Perform this step on *each compute server* and *each print server*.

- **In VAH:** The routines listed to the right are obsolete. Delete them from the production account.

As a safeguard, you may want to back up the routines to a host file or to tape beforehand.

```
>D ^%ZTRDEL
XUCIDSM
XUCIM11
XUCIM11P
XUCIMVX
XUFII*
XUINI*
XUTTI*
XUINPRE7
XUINST
XVIR*
ZIS-ZISFVXD
ZISS*
ZO*
ZTBK*
ZTCPU
ZTGBL
ZTLOAD*
ZTM*
ZTSYINIT
ZUDSM
ZUM11
ZUM11P
ZUMVX
```

Figure 3-16: Clean up old Kernel routines in VAH

15. Install Standalone KIDS Module

DSM for OpenVMS:

Install the standalone KIDS module *once*, for the cluster.

MSM-DOS:

Install the standalone KIDS module on *each compute server* and *each print server*.

- a. **In VAH:** Set up Variables. Set up your DUZ and set DUZ(0) to "@" using the ^XUP and Q^DI entry points:

```
>D ^XUP      (To set DUZ when responding to the Access Code prompt. Press
              Enter at the OPTION prompt.)

>D Q^DI      (To set DUZ(0)="@")
```

Figure 3-17: Set up DUZ and DUZ(0) variables in VAH using ^XUP and Q^DI

- b. **In VAH:** Restore routines from the standalone KIDS distribution file (KIDS8.RTN) to the production account:

```
>D ^%RR

Input Device ? > KIDS8.RTN

Restoring routines from KIDS8.RTN

XLFDT    XLFDT1    XPDCOM    XPDCOMG    XPDCPU    XPDDCS    XPDDI
XPDDP    XPDE      XPDET      XPDGCDEL    XPDH
XPDI      XPDI A    XPDI A1    XPDID      XPDIGP    XPDIJ
XPDIK     XPDIL     XPDIL1     XPDIN001    XPDIN002    XPDIN003    XPDIN004
XPDIN005  XPDIN006  XPDIN007  XPDIN008  XPDIN009  XPDIN00A  XPDIN00B
XPDIN00C  XPDIN00D  XPDIN00E  XPDIN00F  XPDIN00G  XPDIN00H  XPDIN00I
XPDIN00J  XPDIN00K  XPDIN00L  XPDIN00M  XPDIN00N  XPDIN00O  XPDIN00P
XPDIN00Q  XPDIN00R  XPDIN00S  XPDIN00T  XPDINIT    XPDINIT1    XPDINIT2
XPDINIT3  XPDINIT4  XPDINIT5  XPDIP      XPDIPM     XPDIQ      XPDIR
XPDIST     XPDIU     XPDKEY     XPDKRN     XPDMENU    XPDNTEG     XPDPINIT    XPDR
XPDRSUM    XPD T     XPD T A    XPD T A1    XPD T C     XPD T P     XPDUTL      XPDV
XQDATE     XQH
XQ00       XQ001     XQ002     XQ003
>
```

Figure 3-18: Restore routines in VAH

- c. **In VAH:** Run the integrity check routine (^XPDNTEG) to verify the integrity of the KIDS routines:

```
>D ^XPDNTEG
```

Figure 3-19: Run the integrity check routine (^XPDNTEG) in VAH

Report any "off-by" discrepancies to your local OIFO before proceeding with the installation. Discrepancies may simply indicate that the file includes patched routines.

- d. If you are an MSM-DOS site with multiple CPUs, repeat steps a-c above on *every compute server* and *every print server* so that the standalone KIDS module is installed on all compute and print servers.
- e. **In VAH:** Run the KIDS setup routine, ^XPDINIT. You only need to do this on one CPU (not on all CPUs). This routine creates the VA FileMan files used by KIDS.

Be sure to answer YES to write over file security codes. ^XPDINIT brings in a new file, so you *must* answer yes in order for file security to be applied to it.

```
>D ^XPDINIT

This version (#8.0) of 'XPDINIT' was created on 22-APR-1995
      (at KERNEL, by VA FileMan V.21.0)

I AM GOING TO SET UP THE FOLLOWING FILES:

      9.6      BUILD

      9.7      INSTALL

NOTE: This package also contains SORT TEMPLATES
NOTE: This package also contains INPUT TEMPLATES
NOTE: This package also contains PRINT TEMPLATES
NOTE: This package also contains FORMS

ARE YOU SURE EVERYTHING'S OK? No// Y <Enter> (Yes)

...SORRY, JUST A MOMENT PLEASE.....
Compiling form: XPD EDIT BUILD
OK, I'M DONE.
NOTE THAT FILE SECURITY-CODE PROTECTION HAS BEEN MADE
>
```

Figure 3-20: Running the KIDS setup routine (^XPDINIT)

16. Load Kernel V. 8.0 Distribution for Production Account

Once you have installed the standalone KIDS module (previous step), you can use it to load Kernel's production-account distribution.

- a. **In VAH: Set up Variables.** Set up your DUZ and set DUZ(0) to "@" using the ^XUP and Q^DI entry points:

```
>D ^XUP (To set DUZ when responding to the Access Code prompt. Press
      Enter at the OPTION prompt.)

>D Q^DI (To set DUZ(0)="@")
```

Figure 3-21: Set up DUZ and DUZ(0) variables in VAH using ^XUP and Q^DI

Invoke the ^XPDKRN menu to bring up the Kernel installation menu. Choose the LOAD A DISTRIBUTION option. Enter the appropriate host file name to load the Kernel V. 8.0 production distribution file (KRN8.KID).

The distribution should contain Kernel V. 8.0 and Kernel - Virgin Install V. 8.0. Answer YES to the "Want to Continue with Load?" prompt.

KIDS runs the environment check. If it runs successfully, KIDS loads the distribution into ^XTMP, and returns you to the M programmer's prompt. Loading the distribution may take 10 minutes or longer.

If the environment check fails, however, you *must* determine and correct the condition that caused the failure. Once you have corrected the condition, you need to repeat the steps a-b in this section to load the Kernel distribution.

Recovering from an Aborted Distribution Load

If you encounter an error while loading a distribution you will be unable to re-load the distribution until you clear out what was stored during the aborted load attempt.

To clear out the previously loaded distribution, use the Unload a Distribution option. Choose the distribution to unload. The entries in the INSTALL file (#9.7) for all transport globals in the distribution will be removed, and the transport globals themselves will be purged from the ^XTMP global.

Once you have unloaded the distribution, you should be able to reload it.


```

> D ^XPKRN

Select KIDS OPTION: LOAD A DISTRIBUTION
Enter a Host File: A:\KRN8.KID

KIDS Distribution save on Apr 22,1995@10:15:10
Comment: KERNEL 8.0 from ISC-SF by RSD

This Distribution contains the following Build(s):
    KERNEL - VIRGIN INSTALL 8.0
    KERNEL 8.0

Want to Continue with Load? YES// <Enter>
Loading Distribution...

Insert the next diskette, #2, and Press the return key: <Enter>

Insert the next diskette, #3, and Press the return key: <Enter>

Will first run the Environment Check Routine, XVIRENV

KERNEL - VIRGIN INSTALL 8.0 Build will not be installed, Transport Global
deleted!

Will first run the Environment Check Routine, XUINOK

I'm checking to see if it is OK to install KERNEL v8.0 in this account.

Checking the %ZOSV routine

Everything looks OK, Lets continue.

Use Kernel 8.0 to install this distribution.
>

```

Depending on the distribution method, you may or may not be prompted here for additional diskettes!

Figure 3-22: Loading the Kernel distribution—Sample user dialogue

17. Verify Checksums of Loaded Distribution

- **In VAH:** Invoke ^XPDKRN. Use the VERIFY CHECKSUMS IN TRANSPORT GLOBAL option to verify the integrity of the Kernel distribution:

```

>D ^XPDKRN

KIDS 8.0

Select KIDS OPTION: VERIFY <Enter> CHECKSUMS OF TRANSPORT GLOBAL
Select INSTALL NAME: Kernel 8.0
DEVICE: HOME// <Enter>

PACKAGE: KERNEL 8.0      Apr 22, 1995 7:17 am      Page 1
-----

      319 Routine checked, 0 failed.

>

```

Figure 3-23: Verify checksums—Sample user dialogue

Report any "off-by" discrepancies to your local OIFO before installing Kernel. Discrepancies may simply indicate that the distribution includes patched routines.

18. Set Up Variables for Main Installation

Choose what system you are going to perform the main installation on, and log on to that system. This installation is performed on **one system only**, regardless of whether you are an MSM-DOS or DSM for OpenVMS site.

- **In VAH: Set up Variables Again.** Set up your DUZ and set DUZ(0) to "@" again using the ^XUP and Q^DI entry points:

```

>D ^XUP      (To set DUZ when responding to the Access Code prompt.  Press Enter
              at the OPTION prompt.)

>D Q^DI      (To set DUZ(0)="@")

```

Figure 3-24: Set up DUZ and DUZ(0) variables in VAH using ^XUP and Q^DI

Also, make sure you are logged on with an expanded symbol table as described at the start of the installation instructions.

19. Install the Kernel Software

- **In VAH: Install Kernel.**

Invoke the ^XPDKRN routine. Choose the INSTALL PACKAGE(S) option. Select KERNEL 8.0 as the software you want to install.

KIDS runs Kernel's environment check routine a second time (the first time was when the distribution was loaded). If the environment check runs successfully, you may proceed with the main Kernel installation.

If the environment check fails, you need to correct the condition that caused it to fail. You may also need to reload the Kernel distribution if it was purged when the environment check failed.

Annotated Installation Dialogue

An annotated text of the installation dialogue is listed on the following pages. It may not be an exact match of what you will see when running your installation. It is provided as a best approximation of a typical install. Explanatory notes are provided along with the dialogue that may give some indication as to why your experience may differ from the example presented here.

```

> D ^XPKRN

KIDS 8.0

Select KIDS OPTION: INSTALL PACKAGE <Enter>
Select INSTALL NAME: KERNEL 8.0 <Enter>      Loaded from Distribution

This Distribution was loaded on Apr 22, 1995@13:20:44 with header of KERNEL
FROM KRN,KDE
The tape consisted of the following Install(s):
KERNEL 8.0

Will first run the Environment Check Routine, XUINOK

I'm checking to see if it is OK to install KERNEL v8.0 in this account.

Checking the %ZOSV routine
Now to check protection on GLOBALS.
If you get an ERROR, you need to add Write access to that global.

Checking ^%ZIS
Checking ^%ZISL
Checking ^%ZTER
Checking ^%ZUA

Everything looks OK, Lets continue.

Install Questions for KERNEL 8.0

3          USER
Note: You already have the 'USER' File.

3.05       FAILED ACCESS ATTEMPTS LOG
Note: You already have the 'FAILED ACCESS ATTEMPTS LOG' File.

3.07       PROGRAMMER MODE LOG
Note: You already have the 'PROGRAMMER MODE LOG' File.

3.075      ERROR LOG
Note: You already have the 'ERROR LOG' File.
3.076      ERROR MESSAGES (including data)
Note: You already have the 'ERROR MESSAGES' File.
I will MERGE my data with yours.

3.081      SIGN-ON LOG

```

Select "KERNEL 8.0"
from the INSTALL file
(#9.7).

The
environmen
t check is
re-run to
make sure
that the
environmen

There are no
install
questions to
answer for the
Kernel V. 8.0
installation.

The
install
now lists
all files
that will

Note: You already have the 'SIGN-ON LOG' File.

3.1 TITLE

Note: You already have the 'TITLE' File.

3.2 TERMINAL TYPE

Note: You already have the 'TERMINAL TYPE' File.

Want my data to overwrite yours? YES// <Enter>

3.22 DA RETURN CODES (including data)

Note: You already have the 'DA RETURN CODES' File.

Want my data merged with yours? YES// <Enter>

3.23 LINE/PORT ADDRESS

3.5 DEVICE

Note: You already have the 'DEVICE' File.

3.51 SPOOL DOCUMENT

Note: You already have the 'SPOOL DOCUMENT' File.

3.519 SPOOL DATA

Note: You already have the 'SPOOL DATA' File.

3.54 RESOURCE

Note: You already have the 'RESOURCE' File.

3.6 BULLETIN

Note: You already have the 'BULLETIN' File.

4 INSTITUTION

Note: You already have the 'INSTITUTION' File.

4.1 FACILITY TYPE (including data)

Note: You already have the 'FACILITY TYPE' File.

Want my data merged with yours? YES// <Enter>

4.11 AGENCY (including data)

Note: You already have the 'AGENCY' File.

Want my data to overwrite yours? YES// <Enter>

4.3 KERNEL SITE PARAMETERS

Note: You already have the 'KERNEL SITE PARAMETERS' File.

6 PROVIDER

Note: You already have the 'PROVIDER' File.

9.2 HELP FRAME

Note: You already have the 'HELP FRAME' File.

The non-virgin Kernel install brings in CRT-type terminal types. Answer YES to overwrite existing CRT terminal types, or NO to avoid bringing them in.

(NOTE: There are no longer any XUTINIT routines to bring in terminal types at a later time.)

Answer YES to merge Kernel's DA RETURN CODES data with yours.

Answer YES to merge Kernel's FACILITY TYPE data with yours.

Answer YES to overwrite Kernel's AGENCY data with yours.

9.4 PACKAGE
Note: You already have the 'PACKAGE' File.

9.6 BUILD
Note: You already have the 'BUILD' File.

9.7 INSTALL
Note: You already have the 'INSTALL' File.

9.8 ROUTINE
Note: You already have the 'ROUTINE' File.

14.4 TASKS

14.5 VOLUME SET
Note: You already have the 'VOLUME SET' File.

14.6 UCI ASSOCIATION
Note: You already have the 'UCI ASSOCIATION' File.

14.7 TASKMAN SITE PARAMETERS
Note: You already have the 'TASKMAN SITE PARAMETERS' File.

14.8 TASK SYNC FLAG

16 PERSON
Note: You already have the 'PERSON' File.

19 OPTION
Note: You already have the 'OPTION' File.

19.081 AUDIT LOG FOR OPTIONS
Note: You already have the 'AUDIT LOG FOR OPTIONS' File.

19.1 SECURITY KEY
Note: You already have the 'SECURITY KEY' File.

19.2 OPTION SCHEDULING

40.5 HOLIDAY
Note: You already have the 'HOLIDAY' File.

49 SERVICE/SECTION
Note: You already have the 'SERVICE/SECTION' File.

200 NEW PERSON
Note: You already have the 'NEW PERSON' File.

```

8989.2    KERNEL PARAMETERS

8989.3    KERNEL SYSTEM PARAMETERS

8991.5    XQAB ERRORS LOGGED

8992      ALERT

8992.1    ALERT TRACKING

Want to MOVE routines to other CPUs? NO// YES
Please enter the VOLUME SETS you want to update.

    Note: Your system configuration may differ!

Select VOLUME SET: PSB
Are you adding 'PSB' as a new VOLUME SET (the 1st
for this install)? Y <Enter> ES
Select VOLUME SET: CSA
Are you adding 'CSA' as a new VOLUME SET (the 2nd
for this install)? Y <Enter> ES
Select VOLUME SET: CSB
Are you adding 'CSB' as a new VOLUME SET (the 3rd
for this install)? Y <Enter> ES
Select VOLUME SET: CSC
Are you adding 'CSC' as a new VOLUME SET (the 4th
for this install)? Y <Enter> ES
Select VOLUME SET: <Enter>

TASKMAN is not running. You must run the routine XPDCPU in the production UCI
for each of the VOLUME SETS you have listed, once the installation starts.

Enter the Device you want to print the Install messages. You can queue the
install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME// <Enter>  DECSERVER

Install Started:
    Apr 22, 1995@13:22:21

```

The MOVE Routines to Other CPUs dialogue below is only seen at MSM sites. DSM for OpenVMS sites will *not* see this question!

MSM-DOS sites with multiple CPUs need to answer YES and enter the volume set name for every compute and print server except the current system (whose routines are updated by the main installation) so that routines can be updated.

The "TASKMAN is not running" message is only seen by MSM-DOS sites moving routines to other CPUs.

DO NOT queue the Kernel installation! Enter a device on which to display the installation output. To abort the installation, enter a caret ("^") at the "DEVICE:" prompt.

Figure 3-25: Example of an installation done at the San Francisco OIFO

MSM-DOS (with multiple compute and print servers):

Once you have selected a device and see the "Install Started" message, *you should switch to your other compute and print servers and run ^XPDCPU. Ideally, you should start ^XPDCPU*

on each print server and compute server (other than the CPU the main installation is running on) *before* the main installation finishes.



NOTE: ^XPDCPU does not need to finish before the main installation does, it only needs to be started. See "While Main Installation is Running (Multi-CPU Systems)" later in this section for further instructions on running ^XPDCPU.

You have now answered all the installation questions (the pre-install and post-install routines do not ask any questions when they run). The installation runs, with its output going to the device that you specify. A sample of the installation output is listed below, again in annotated format.

This output will scroll in a window if the installation is run on a VT100- (or higher) compatible terminal. Below the scrolling window, there is a graphical progress bar showing % completion figures for most parts of the installation, as shown on the following page.

If you are installing from a terminal that is not VT100-compatible, installation progress is noted using the traditional dots method (.....).

A full sample installation dialog is listed on the following pages.

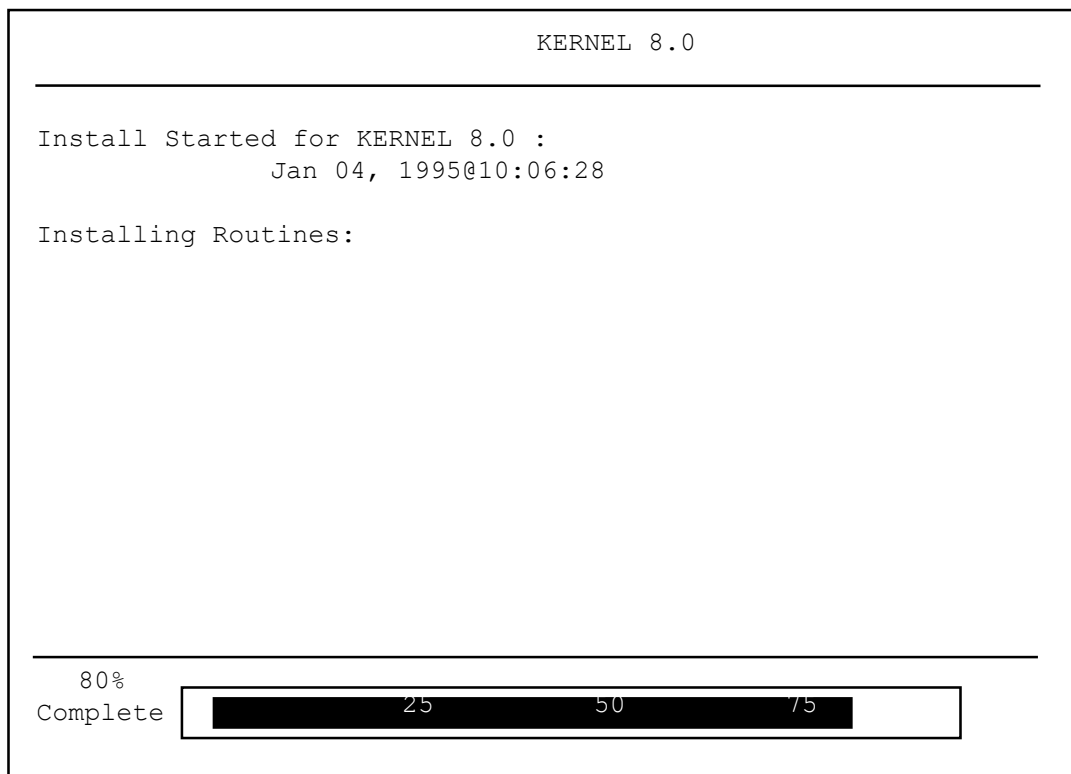


Figure 3-26: KIDS Installation Window


```

DEVICE: HOME// <Enter> DECSERVER
Install Started:
    Apr 22, 1995@13:22:21

Installing Routines:
    Apr 22, 1995@13:24:08

Running Pre-Install Routine: ^XUINPRE
Clean up dangling 99 nodes in the OPTION File.

Installing Data Dictionaries: ...
    Apr 22, 1995@13:28:31

Installing Data:
    Apr 22, 1995@13:29:24

Installing PACKAGE COMPONENTS:

Installing HELP FRAME

Installing BULLETIN

Installing SECURITY KEY

Installing FUNCTION

Installing PRINT TEMPLATE

Installing SORT TEMPLATE

Installing INPUT TEMPLATE

Installing FORM

Installing OPTION
    Apr 22, 1995@13:42:32

Running Post-Install Routine: ^XUINEND
Move KERNEL site parameters.
Moving ALERTS from file 200 to file 8992...
Delete CPU field from alpha/beta test sites
Option Scheduling conversion.
Beginning TaskMan's post-init conversion..
Option:XMCLEAN move to new file.
.
.
.
Option: XUCM TASK NIT move to new file.
End of TaskMan's post-init conversion.
Check and clean out XUFILE if not running FOF.
Load PARAM file
TO PROTECT THE SECURITY OF DHCP SYSTEMS, DISTRIBUTION OF THIS SOFTWARE FOR USE
ON ANY OTHER COMPUTER SYSTEM IS PROHIBITED. ALL REQUESTS FOR COPIES OF THE
KERNEL FOR NON-DHCP USE SHOULD
BE REFERRED TO YOUR LOCAL ISC.

Updating Routine file... ...
Updating KIDS files... ....

KERNEL 8.0 Installed.
    Apr 22, 1995@13:48:28

```

Output is sent to device you specify.

KIDS runs the pre-install routine.

KIDS installs files and data.

KIDS installs each software component.

KIDS runs the post-install routine.

The TaskMan post-init conversion moves many options. The Full list of options moved is omitted here.

Kernel V. 8.0 is now installed on your system. You still have some tasks to perform, however.

```
Install Message sent # 983674
```

Figure 3-27: Example of an installation done at the San Francisco OIFO

While Main Installation is Running (Multi-CPU Systems)

You should perform the following steps on other CPUs while the main installation runs on the first CPU:

MSM-DOS:

If you answered "YES" to the "Want to MOVE routines to other CPUs?" question during the main installation, you should run the ^XPDCPU routine on all print and compute servers you asked to update after you answered YES. You should start ^XPDCPU while the main installation is running.

- **In VAH:** Start ^XPDCPU on every compute and print server *other* than the one the main installation is running on (assuming you listed these CPUs to be updated when asked by the main installation). In each case, start it while the main installation is still running. Enter Kernel 8.0 when prompted for an INSTALL name. ^XPDCPU will then load routines, recompile templates, and queue a menu tree rebuild:

```
>D ^XPDCPU

Select INSTALL NAME: Kernel 8.0
Loading Routines
Recompiling Template routines
Queuing Menu Tree Rebuild

>
```

Figure 3-28: Running ^XPDCPU in VAH

^XPDCPU will not be able to complete the update of routines on other CPUs in the following situations:

- You answered NO to the "move routines to other CPUs" question, or, if you answered yes, you didn't list every CPU that needed updating.
- You didn't start ^XPDCPU on a CPU before the main installation completed.
- An error occurred during the updating of a CPU.

In these cases, you need to wait until after the main installation completes; then, manually update routines on the other compute and print servers. See "Manually Update Routines on Other CPUs" in the list of tasks to perform when the main installation is done for more information.

DSM for OpenVMS:

- **In VAH and MGR:** Disable routine mapping on all nodes other than the one the one that the main installation is running on.

If the Main Installation Errors Out

If the Main Installation errors out, first determine the cause of the problem. Once you have found the problem and corrected it, invoke ^XPKRN and use the RESTART INSTALL OF PACKAGE(S) option to restart the Kernel installation.

KIDS provides the ability to restart installations that errored out at the point they errored out. This saves you, the installer, from having to re-run the entire installation over again. When you restart an aborted installation using RESTART INSTALL OF PACKAGE(S), the installation resumes from the last completed checkpoint.

20. When Main Installation is Done

When the main installation is done, more steps need to be performed to finish setting up Kernel V. 8.0.

CONTINUE WORKING IN THE PRODUCTION ACCOUNT
(e.g., VAH)

21. Reset ZU

- **In VAH:** Save ZU by renaming your operating system-specific ZU routine. (You may also optionally save ZU in the Manager's account so that global protect errors will be trapped and displayed if they should occur).

On multi-CPU MSM-DOS systems, you will need to reload ZU on *each print server and compute server*.

DSM FOR OpenVMS:

```
>ZL ZUVXD ZS ZU
```

Figure 3-29: Saving ZU—DSM FOR OpenVMS

MSM-DOS:

```
>ZL ZUMSM ZS ZU
```

Figure 3-30: Saving ZU—MSM-DOS

22. Manually Update Routines on Other CPUs

This step is only for sites whose system has print or compute servers beyond the one that the main installation ran on. You only need to perform this step if:

- You answered NO to the "move routines to other CPUs" question, or, if you answered yes, you didn't list every CPU that needed updating.
- An error occurred during the updating of a CPU.
- You didn't start ^XPDCPU on a CPU before the main installation completed.
- You are a DSM for OpenVMS site. DSM for OpenVMS sites can't move routines to other CPUs during the main installation, but can use the manual method afterwards (for unusual CPU configurations).

If any of these situations occur, then the routines, compiled templates, and compiled cross-references need to be manually updated on those CPU(s). To do this, perform the manual update as follows:

- In VAH:** Run the utility MOVE^XPDCPU once, on the system where the main installation completed. Enter Kernel 8.0 when prompted for an install name. This utility copies all the routines that need updating (including compiled templates and cross-references) into ^XTMP.

```
> D MOVE^XPDCPU

Select INSTALL NAME: KERNEL 8.0
Want to move the Routine for this Package to another CPU? YES// <Enter>

Run INSTALL^XPDCPU on the other CPU to install the Routines.

>
```

Figure 3-31: Running the MOVE^XPDCPU utility in VAH

- In VAH:** On each CPU that didn't get updated by ^XPDCPU during the main installation, run the utility INSTALL^XPDCPU. This loads routines from ^XTMP (where they were placed by MOVE^XPDCPU above) onto the CPU that INSTALL^XPDCPU is being run on.

```
> D INSTALL^XPDCPU

Select INSTALL NAME: KERNEL 8.0 <Enter>           Install Completed
Want to install the Routine for this Package? YES// <Enter>

Done

>
```

Figure 3-32: Running the INSTALL^XPDCPU utility in VAH

- Rebuild menus on each CPU that you have manually updated. To do this, run Kernel's Build Primary Menu Trees option.

NOW MOVE BACK TO THE MANAGER (LIBRARY) ACCOUNT
(e.g., MGR)

23. Reset ^%ZTMSH (TaskMan Header Page) Routine

- **In MGR:** If you have been using a local TaskMan header page (by customizing the ^%ZTMSH routine), reload your local version of the ^%ZTMSH routine.

24. Reset Global Protection For ^%ZUA

- **In MGR:** Reset global protections for ^%ZUA. The ^%ZUA global should be cluster mounted/translated across all CPUs.

DSM for OpenVMS:

```
>D ^%GLOMAN <Enter>
(Manage globals in which UCI? MGR)
^%ZUA
```

	System	World	Group	UCI
Cluster Mounted:	RWP	R	RW	RW

Figure 3-33: Reset global protections for ^%ZUA—DSM for OpenVMS

MSM-DOS:

This is the same protection level that was set before the Kernel Installation.

```
>D ^%GCH <Enter>
(Set Protection)
^%ZUA
```

	System	World	Group	User
Translated across CPUs:	RWD	RW	RW	RWD

Figure 3-34: Reset global protections for ^%ZUA—MSM DOS

25. Implement Routine Mapping (DSM for OpenVMS only)

- **Map routines in the Manager account.** The recommended set is listed below. (At a future time, you should run RTHIST reports to identify the set of routines that are used most frequently at your site. The set provided here is only a "best guess" of which routines might be worth mapping.)

DSM FOR OpenVMS:

Edit your command file for building mapped routine sets, and then run it.

MSM-DOS:

Not Applicable.

%ZIS	%ZIS1	%ZIS2	%ZIS3	%ZIS4
%ZIS5	%ZIS6	%ZISC		
%ZOSV	<i>(To avoid potential problems, do not map %ZOSV if you are running a version of VAX DSM less than V6.)</i>			
%ZTLOAD	%ZTLOAD1	%ZTLOAD2	%ZTM	%ZTM1
%ZTM2	%ZTM4	%ZTM5	%ZTMS	%ZTMS0
%ZTMS1	%ZTMS2	%ZTMS3	%ZTMS4	%ZTMS7

- **Map routines in the Production account.** The recommended set is listed below.

(At a future time, you should run RTHIST reports to identify the set of routines that are used most frequently at your site. The lists provided below are only "best guesses" of which routines might be worth mapping.)

DSM FOR OpenVMS:

Edit your command file for building mapped routine sets, and then run it.

MSM-DOS:

Not Applicable.

XQ	XQ1	XQ2	XQ12	XQ7
XQ71	XQ72	XQ73	XQ74	XQ75
XQ83	XQCHK	XQDATE	XQH	XQH1
XQH2	XQSET	XQT	XQT1	
XUS	XUS1	XUS3	XUSCLEAN	
XUSHSH	ZU			

- **Activate Mapped Routine Sets.** Check your DSM for OpenVMS documentation for the correct procedures necessary to activate the updated mapped routine sets. If you have a multi-CPU system, activate mapping on all CPUs.

26. Restart TaskMan

- **In MGR: Check the system status to see whether TaskMan is running.**

DSM for OpenVMS:

For DSM for OpenVMS sites, TaskMan should have started when you rebooted to activate new mapped routine sets. Check the System Status (e.g., D ^%SY). If there is no %ZTM* routine running,

```
>D ^ZTMB
```

MSM-DOS:

For MSM-DOS systems, you need to restart it manually. Check the System Status (e.g., D ^%SS). If there is no %ZTM* routine running,

```
>D ^ZTMB
```

NOW MOVE BACK TO THE PRODUCTION ACCOUNT
(e.g., VAH)

27. Enable Logons

- **In VAH:** Enable logons from the VOLUME SET file (#14.5). This also allows TaskMan to start tasks.

If you have local procedures to enable logons, follow those procedures to enable logons. Otherwise, if you disabled logons before the Kernel installation by editing the INHIBIT LOGON field in the Volume Set file (#14.5) for each Volume set, then edit those fields again to enable logons.



NOTE: A menu tree rebuild will be triggered because of the extensive modifications to the menus made during the Kernel installation. While the menu trees are rebuilding, menu jumping will be disabled.

- **In VAH:** Edit the INHIBIT LOGON field of the VOLUME SET file (#14.5) to properly enable/disable logons.

```
>D Q^DI

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: VOLUME SET
EDIT WHICH FIELD: ALL// INHIBIT LOGONS?
THEN EDIT FIELD: <Enter>
```

Figure 3-35: Enabling logons—All

DSM FOR OpenVMS:

```
Select VOLUME SET: ROU
INHIBIT LOGON?: YES// NO
```

Figure 3-36: Enabling logons—DSM FOR OpenVMS

MSM DOS:

```
Select VOLUME SET: CSA
      INHIBIT LOGON?: YES// NO

Select VOLUME SET: CSB
      INHIBIT LOGON?: YES// NO
```

Figure 3-37: Enabling logons—MSM DOS

28. Restart MailMan's Background Filer

- **In VAH:** If you are running MailMan, restart its background filer with MailMan's START Background Filer option.

The Kernel V. 8.0 Installation is now done. Please see the following section for post-installation tasks.

III. Post-Installation Tasks

You should perform the following tasks after the Kernel V. 8.0 installation is completed. Users can be allowed back on the system and tasks can be allowed to run as you perform the steps in this section.

1. Review Site Parameters

Use the Enter/Edit Kernel Site Parameters option on the Operation menu to set or adjust defaults. Type two question marks for a description of the field and suggested defaults. (Operations Management -> Kernel Management Menu -> Enter/Edit Kernel Site Parameters.)



REF: For more information, please refer to the "Implementation and Maintenance" section of the *Kernel Technical Manual*.

2. Review Option Scheduling

Review schedules for queued options to be sure they are appropriate. Kernel does not export any scheduling data with its options. IRM *must* determine the appropriate option scheduling for the site.

You can run two reports to help review the current scheduling of options. From the TaskMan Management menu, the Print Recommended for Queueing Options report lists all the options that developers (Kernel and other VistA software application) recommend for regular scheduling. The Print Options that are Scheduled to run option lists all options on your system that are currently scheduled.

Kernel recommends that the following Kernel options be scheduled with the following frequencies:

Option	Frequency	Option Text
XQALERT DELETE OLD	1D	Delete Old (>14 d) Alerts
XQBUILDTREEQUE	2D	Non-interactive Build Primary Menu Trees
XQ XUTL \$J NODES	7D	Clean old Job Nodes in XUTL
XUAUTODEACTIVATE	1D	Automatic Deactivation of Users
XUERTRP PRINT T-1 1 ERR	1D	P1 Print 1 occurrence of each error for T-1 (QUEUE)
XUERTRP PRINT T-1 2 ERR	1D	P2 Print 2 occurrences of errors on T-1 (QUEUE)
XUSAZONK	15D	Purge of the %ZUA global
XUSCZONK	1D	Purge Sign-on log
XUTM QCLEAN	1D	Queueable Task Log Cleanup
XU-SPL-PURGE	7D	Purge old spool documents

Table 3-4: Kernel options—Recommended scheduling frequency

To schedule these options, use Schedule/Unschedule Options on the Taskman Management menu.

Other Option Scheduling Recommendations

- You can use the SPECIAL QUEUING field to set up the XUSER-CLEAR-ALL option to run whenever TaskMan starts up. This option clears all users signed on from the multiple sign-on restriction. This can be useful when M crashes; without running this option, anyone who was signed on before M crashed would be unable to logon afterwards depending on their multiple sign-on restriction. With this option set, however, whenever TaskMan starts up (typically when starting up the VistA system), any leftover sign-on information from before a crash is automatically cleaned out.
- MSM-DOS sites that run TaskMan only on the Print Server should schedule the XU-486 MENU COPY option to run after the menu tree rebuild has finished on the Print Server.
- Although the XT-PURGE ERRORS (Clean Error Trap) option *cannot* be scheduled to run (since it is interactive), you may want to invoke it at periodic intervals as appropriate at your site.
- The XUSERAOLD (Purge Log of Old Access and Verify Codes) option can be queued, but it is up to the site to determine how often the history of access and verify codes is purged.
- Review settings for option restriction to be sure they are appropriate. There are a variety of ways that you can restrict or prohibit option usage. Menu Manager's Edit Options can be used edit an option's settings. You can require, for example, that the output of a job be queued to run during certain time periods. The ^%INDEX option would be a candidate for such a restriction.



REF: For more information on restricting option usage, please refer to the Menu Manager: System Management chapter of the *Kernel Systems Management Guide*.

3. Install the OpenVMS EDT or TPU Text Editor (Optional)

DSM for OpenVMS:

DSM for OpenVMS sites can choose to make the OpenVMS EDT and/or TPU text editor available to users as alternate editors. This is accomplished by making an entry in the ALTERNATE EDITOR file (#1.2) as shown below (Figure 3-38).

The EDT and TPU editors can both read and write host files on OpenVMS systems, and so should be given out only after considering file protections and the security of host files on your system. Unless proper file protections have been applied to all host files on your system, the EDT and TPU editors should not be given out beyond system management staff.

```

>D Q^DI
VA FileMan 21

Select OPTION: ENTER OR EDIT FILE ENTRIES

INPUT TO WHAT FILE: 1.2 <Enter> ALTERNATE EDITOR          (2 entries)
EDIT WHICH FIELD: ALL// <Enter>

Select ALTERNATE EDITOR: VMSEDT <Enter>
  ARE YOU ADDING 'VMSEDT' AS A NEW ALTERNATE EDITOR (THE 3RD)? Y <Enter> (YES)
ACTIVATION CODE FROM DIWE: G ^XTEDTVXD
ACTIVATION CODE FROM DIWE: G TPU^XTEDTVXD
OK TO RUN TEST: I ^%ZOSF("OS") ["VAX"
RETURN TO CALLING EDITOR: <Enter>
DESCRIPTION:
  1> Call to VMS EDT editor to process VA FileMan word-proc. fields.<Enter>
  2> Creates temporary VMS file in the default directory with a name <Enter>
  3> of 'DIWE$_$JOB_.TMP'. This version will remove the two copies <Enter>
  4> of the file that EDT leaves behind. <Enter>
  5> <Enter>
EDIT Option: <Enter>

Select ALTERNATE EDITOR: <Enter>

```

Figure 3-38: Installing the OpenVMS EDT or TPU Text Editor—Sample user dialogue

4. Customize "Edit User Characteristics" (Optional)

The Edit User Characteristics option, exported by Kernel on the Common Menu, allows users to edit their user attributes. When a user chooses the Edit User Characteristics option, Kernel attempts to load the ScreenMan form named XUEDIT CHARACTERISTICS, if it exists. If the form cannot be loaded on the current terminal type, Kernel invokes the scrolling-mode input template of the same name instead.

The set of fields a user can edit through this option can be locally defined, by creating an alternative ScreenMan form and input template locally, however. The Edit User Characteristics option checks the KERNEL PARAMETER file (#8989.2) to see if the site has specified an alternate name for the ScreenMan form and input template. If the site has specified an alternate name, then the option uses the site-specified form and template.

To replace the default Edit User Characteristics form and template, follow these steps:

- a. Clone the Kernel default ScreenMan form.
- b. Modify the cloned ScreenMan form.
- c. Create and modify an input template with the same name as the cloned ScreenMan form.
- d. Update the KERNEL PARAMETERS file (#8989.2) so that Edit User Characteristics uses the local ScreenMan form and template, rather than Kernel's default form and template.

Once you have completed these four steps, the Edit User Characteristics option in Kernel V. 8.0 uses your locally created ScreenMan form and input template, rather than the default Kernel ScreenMan form and template.

Each of these steps is described below in detail:

a. Clone the Kernel Default ScreenMan Form

Use VA FileMan's CLONE^DDS entry point (documented in the *VA FileMan Programmer's Manual*) to clone the NEW PERSON file's XUEDIT CHARACTERISTICS form. The current namespace for that form (and associated blocks) is XU; the local version be saved with a namespace of ZZ XU.

b. Modify the Cloned ScreenMan Form

Use VA FileMan's new visual Form Editor to locally modify the cloned ScreenMan form (documented in the *VA FileMan User Manual*) so that it edits the fields you want it to edit.

c. Create and Modify an Input Template

Before the ScreenMan form can be used in the Edit User Characteristics option, you *must* create an input template in the NEW PERSON file (#200) with the same name as the form created in step a. There are two ways to do this:

1. Edit the XUEDIT CHARACTERISTICS template and save it under the same name you used for the cloned ScreenMan form.

OR

2. Create an input template from scratch and save it under the same name you used for the cloned ScreenMan form.

d. Update the KERNEL PARAMETERS File

Finally, instruct Kernel to use your new form when the user requests the Edit User Characteristics option. Do this by entering a replacement name for the XUEDIT CHARACTERISTICS entry in the KERNEL PARAMETERS file (#8989.2). Use VA FileMan to do this:

```
Select VA FileMan Option: Enter or Edit File Entries

INPUT TO WHAT FILE: OPTION// KERNEL PARAMETERS <Enter> (5 entries)
EDIT WHICH FIELD: ALL// <Enter>

Select KERNEL PARAMETERS NAME: XUEDIT CHARACTERISTICS
NAME: XUEDIT CHARACTERISTICS Replace <Enter>
TYPE: I// <Enter>
DEFAULT: <Enter>
REPLACEMENT: ZZXUEDIT CHARACTERISTICS

Select KERNEL PARAMETERS NAME:
```

Figure 3-39: Updating the KERNEL PARAMETERS file (#8989.2)—Sample user dialogue

4. Virgin Installation

For a virgin install, you *must* have already established library and production UCIs. Also, VA FileMan V. 21 *must* already be installed.

Differences between the data installed on your system during the Virgin Install (versus installing Kernel V. 8.0 in a V. 7.1 environment) are as follows:

- More VA FileMan files are installed by the Virgin Install.
- More TERMINAL TYPE entries (for printers) are brought in by the Virgin Install.

Installation Instructions

1. Confirm Distribution Files for Kernel V. 8.0

**BEGIN THE INSTALLATION IN THE PRODUCTION ACCOUNT
(e.g., VAH)**

2. Log On, Using Console Device

Choose what system you are going to perform the main installation on, and log on to that system, using the console device. This installation is performed on *one system only*, regardless of whether you are an MSM-DOS or DSM for OpenVMS site.

Use the *console device*, since Kernel will initially be configured to recognize only the console device.

DSM FOR OpenVMS:

Use a privileged OpenVMS account. Also, create a large symbol table at sign-on, (\$DSM/SYM=100000) so there is enough space to work.

MSM-DOS:

When logging on, increase the symbol table size to 100 (UCI,VOL:ROU:100) so that there is enough space to work.

3. Inhibit Logons/Kill Off Users

Inhibit logons, if there is the possibility of anyone accessing the system while the Kernel installation is running. Kill off any M users on the system.

**NOW MOVE BACK TO THE MANAGER (LIBRARY) ACCOUNT
(e.g., MGR)**

4. Set Up Global Protection, Translation and Journaling for Manager's Account Globals

You *do not* need to set up globals in the production account at this time.

Manager's account only: Initialize Kernel globals.

Set up Kernel's Manager account globals, which are listed in the Review Global Protection, Translation, and Journaling section.

As you create and place the globals in the Manager's account, set their characteristics (protection, translation, and journaling) as recommended in the Review Global Protection, Translation, and Journaling section. But only set up globals in the Manager's account.

DSM for OpenVMS:

Use the ^%GLOMAN utility.

MSM-DOS:

Use the ^%GCH utility.

5. Check Global Protection for ^%ZOSF

6. Lift Global Protection for ^%ZUA

7. Load Manager Routines

8. Run the Manager Setup Routine

NOW MOVE BACK TO THE PRODUCTION ACCOUNT
(e.g., VAH)

9. Install Standalone KIDS Module

DSM for OpenVMS:

Install the standalone KIDS module *once*, for the cluster.

MSM-DOS:

Install the standalone KIDS module on *each compute server* and *each print server*.

- a. **In VAH:** Restore routines from the standalone KIDS distribution file (KIDS8.RTN) to the production account:

```
>D ^%RR <Enter>

Input Device ? > KIDS8.RTN <Enter>

Restoring routines from KIDS8.RTN

XLFDT      XLFDT1    XPDCOM    XPDCOMG    XPDCPU    XPDDCS    XPDDI    XPDDP
XPDE       XPDET     XPDGCDEL XPDH       XPDIGP    XPDIJ
XPDI       XPDIA     XPDIA1   XPDID      XPDIGP    XPDIJ
XPDIK      XPDIL     XPDIL1   XPDIN001   XPDIN002  XPDIN003  XPDIN004
XPDIN005   XPDIN006   XPDIN007 XPDIN008   XPDIN009  XPDIN00A  XPDIN00B
XPDIN00C   XPDIN00D   XPDIN00E XPDIN00F   XPDIN00G  XPDIN00H  XPDIN00I
XPDIN00J   XPDIN00K   XPDIN00L XPDIN00M   XPDIN00N  XPDIN00O  XPDIN00P
XPDIN00Q   XPDIN00R   XPDIN00S XPDIN00T   XPDINIT   XPDINIT1  XPDINIT2
XPDINIT3   XPDINIT4   XPDINIT5 XPDIP      XPDIPM    XPDIQ     XPDIR
XPDIST     XPDIU     XPDKEY   XPDKRN     XPDMENU   XPDNTEG   XPDINIT   XPDV
XPDRSUM    XPDT      XPDTA    XPDTA1     XPDTC     XPDTP     XPDUTL    XPDV
XQDATE     XQH
XQOO       XQOO1     XQOO2     XQOO3
>
```

Figure 4-1: Restoring routines in VAH

- b. **In VAH:** Run the integrity check routine (^XPDNTEG) to verify the integrity of the KIDS routines:

```
>D ^XPDNTEG
```

Figure 4-2: Run the integrity check routine (^XPDNTEG) in VAH

Report any "off-by" discrepancies to your local OIFO before proceeding with the installation. Discrepancies may simply indicate that the file includes patched routines.

- c. If you are an MSM-DOS site with multiple CPUs, repeat steps a-b above on *every compute server* and *every print server* so that the standalone KIDS module is installed on all compute and print servers.
- d. **In VAH:** Run the KIDS setup routine, ^XPDINIT. You only need to do this on one CPU (not on all CPUs). This routine creates the VA FileMan files used by KIDS.

Answer YES to write over file security codes; ^XPDINIT brings in new files, so you should answer yes to apply file security.

```
>D ^XPDINIT

This version (#8.0) of 'XPDINIT' was created on 22-APR-1995
      (at KERNEL, by VA FileMan V.21.0)

I AM GOING TO SET UP THE FOLLOWING FILES:

      9.6      BUILD

      9.7      INSTALL

NOTE: This package also contains SORT TEMPLATES
NOTE: This package also contains INPUT TEMPLATES
NOTE: This package also contains PRINT TEMPLATES
NOTE: This package also contains FORMS

ARE YOU SURE EVERYTHING'S OK? No// Y <Enter> (Yes)

...SORRY, JUST A MOMENT PLEASE.....
Compiling form: XPD EDIT BUILD
OK, I'M DONE.
NOTE THAT FILE SECURITY-CODE PROTECTION HAS BEEN MADE
>
```

Figure 4-3: Running the KIDS setup routine (^XPDINIT) in VAH

10. Set Up Variables

- **In VAH: Set up Variables.** Set up your DUZ and set DUZ(0) to "@" using the Q^DI entry point, and use direct set commands to create three additional variables (DUZ=.5, IO=IO(0), and IOST=""):

```
>D Q^DI      (To set DUZ(0)="@")

VA FileMan 21.0

Select OPTION: <Enter>
>S DUZ=.5,IO=IO(0),IOST=""
>
```

Figure 4-4: Set up DUZ and DUZ(0) variables in VAH using Q^DI

11. Load Kernel V. 8.0 Distribution for Production Account

- **In VAH:** Invoke ^XPDKRN to bring up the Kernel Installation menu. Choose the LOAD A DISTRIBUTION option.

Device Name Prompt

For Device Name, enter the device name appropriate for your operating system to open the distribution host file. Enter two question marks ("??") to list suggesting values (based on operating system).

DSM for OpenVMS:

Enter the full distribution file name at this prompt, including path.

MSM-DOS:

Enter the device number for host files.

Device Parameters Prompt

For Device Parameters, enter the device parameters appropriate for your operating system. Enter two question marks to list suggested values (based on operating system).

DSM for OpenVMS:

Enter READONLY at this prompt.

MSM-DOS:

Enter, in parentheses, the full distribution file name, including path, a colon, and "R" in quotation marks. For example, if the distribution file is in drive a:, you would enter ("A:\KRN8.KID":"R") including the parentheses.

Want to Continue with Load? Prompt

The distribution should contain Kernel V. 8.0 and Kernel - Virgin Install V. 8.0. Answer YES to the "Want to Continue with Load?" prompt.

KIDS runs the environment check. If it runs successfully, KIDS loads the distribution into ^XTMP, and returns you to the M programmer's prompt. If the environment check fails, however, you *must* determine and correct the condition that caused the failure. Once you have corrected the condition, you need to repeat the instructions in this section to load the Kernel distribution.

```

>D ^XPDKRN

KIDS 8.0

Select KIDS OPTION: LOAD A DISTRIBUTION
Device Name: ?

Device Name is either the name of the HFS file or the name of the HFS Device.
i.e.  for MSM enter  51
      for DSM enter  DISK$USER::[ANONYMOUS]:KRN8.KID

Device Name: KRN8.KID
Device Parameters: ?

Device Parameter is the Open parameter this M operating system needs to
open the Device Name.
i.e.  for MSM enter  ("B:\KRN8.KID":"R")
      for DSM enter  READONLY

Device Parameters: READONLY

KIDS Distribution save on Apr 22, 1995@10:15:10
Comment: Kernel 8.0 from ISC-SF by RSD

This Distribution contains Transport Globals for the following Package(s):
  KERNEL 8.0
  KERNEL - VIRGIN INSTALL 8.0

Want to Continue with Load? YES// <Enter>
Loading Distribution...

Will first run the Environment Check Routine, XVIRENV
Will first run the Environment Check Routine, XUINOK
I'm checking to see if it is OK to install KERNEL v8.0 in this account.

Checking the %ZOSV routine
Everything looks OK, Lets continue.

Use KERNEL - VIRGIN INSTALL 8.0 to install this Distribution.

>

```

Figure 4-5: Loading the Kernel V. 8.0 distribution

Recovering from an Aborted Distribution Load

If you encounter an error while loading a distribution you will be unable to re-load the distribution until you clear out what was stored during the aborted load attempt.

To clear out the previously loaded distribution, use the Unload a Distribution option. Choose the distribution to unload. The entries in the INSTALL file (#9.7) for all transport globals in the distribution will be removed, and the transport globals themselves will be purged from the ^XTMP global.

Once you have unloaded the distribution, you should be able to reload it.

12. Verify Checksums of Loaded Distribution

- **In VAH:** Invoke ^XPDKRN. Use the VERIFY CHECKSUMS OF TRANSPORT GLOBAL option to verify the integrity of the two Kernel distributions (KERNEL 8.0 and KERNEL - VIRGIN INSTALL 8.0):

```

>D ^XPDKRN

KIDS 8.0

Select KIDS OPTION: VERIFY <Enter> CHECKSUMS OF TRANSPORT GLOBAL
Select INSTALL NAME: Kernel 8.0
PACKAGE: KERNEL 8.0      Apr 22, 1995 7:17 am      Page 1
-----

      319 Routine checked, 0 failed.

>D ^XPDKRN

KIDS 8.0

Select KIDS OPTION: VERIFY <Enter> CHECKSUMS OF TRANSPORT GLOBAL
Select INSTALL NAME: KERNEL - VIRGIN INSTALL 8.0
PACKAGE: KERNEL - VIRGIN INSTALL 8.0 Apr 22, 1995 7:17 am Page 1
-----

      2 Routine checked, 0 failed.

>

```

Figure 4-6: Verify checksums (Virgin installs)—Sample user dialogue

Report any "off-by" discrepancies to your local OIFO before installing Kernel. Discrepancies may simply indicate that the distribution includes patched routines.

13. Install the Kernel Software

- **In VAH:** Install Kernel.

Make sure that your variables are still set up. Set up your DUZ and set DUZ(0) to "@" using the Q^DI entry point, and use direct set commands to create three additional variables, as in a previous step (DUZ, IO, and IOST).

Invoke the ^XPDKRN routine again. Choose the INSTALL PACKAGE(S) option. Select KERNEL - VIRGIN INSTALL 8.0 as the software you want to install.

KIDS runs Kernel's environment check routine a second time (the first time was when the distribution was loaded). If the environment check runs successfully, you may proceed with the main Kernel installation.

If the environment check fails, you need to correct the condition that caused it to fail. You may also need to reload the Kernel distribution if it was purged when the environment check failed.

Annotated Installation Dialogue

An annotated text of the installation dialogue is listed on the following pages. It may not be an exact match of what you will see when running your installation. It is provided as a best approximation of a typical installation. Explanatory notes are provided along with the dialogue that may give some indication as to why your experience may differ from the example presented here.

```
>D ^XPDKRN
```

```
KIDS 8.0
```

```
Select KIDS OPTION: INSTALL PACKAGE <Enter> (S)
```

```
Select INSTALL NAME: KERNEL - VIRGIN INSTALL 8.0 <Enter>   Loaded from  
Distribution
```

```
This Distribution was loaded on Apr 22, 1995@15:28:00 with header of Kernel 8.0  
from ISC-SF by RSD ;Created on Apr 11,1995@10:00:07
```

```
The tape consisted of the following Install(s):
```

```
KERNEL - VIRGIN INSTALL 8.0
```

```
KERNEL 8.0
```

**Select "KERNEL -
VIRGIN INSTALL 8.0"
from the INSTALL
file.**

```
Will first run the Environment Check Routine, XVIRENV
```

```
Install Questions for KERNEL - VIRGIN INSTALL 8.0
```

```
3.2      TERMINAL TYPE (including data)
```

```
3.8      MAIL GROUP
```

```
4.2      DOMAIN
```

```
5        STATE (including data)
```

```
7        PROVIDER CLASS
```

```
7.1      SPECIALITY
```

```
10       RACE (including data)
```

```
11       MARITAL STATUS (including data)
```

```
13       RELIGION (including data)
```

```
Will first run the Environment Check Routine, XUINOK
```

```
I'm checking to see if it is OK to install KERNEL v8.0 in this account.
```

```
Checking the %ZOSV routine
```

```
Now to check protection on GLOBALS.
```

```
If you get an ERROR, you need to add Write access to that global.
```

```
Checking ^%ZIS
Checking ^%ZISL
Checking ^%ZTER
Checking ^%ZUA
```

Everything looks OK, Lets continue.

Install Questions for KERNEL 8.0

```
3          USER

3.05       FAILED ACCESS ATTEMPTS LOG

3.07       PROGRAMMER MODE LOG

3.075      ERROR LOG

3.076      ERROR MESSAGES  (including data)

3.081      SIGN-ON LOG

3.1        TITLE

3.2        TERMINAL TYPE  (including data)

3.22       DA RETURN CODES  (including data)

3.23       LINE/PORT ADDRESS

3.5        DEVICE

3.51       SPOOL DOCUMENT

3.519      SPOOL DATA

3.54       RESOURCE

3.6        BULLETIN

4          INSTITUTION

4.1        FACILITY TYPE  (including data)

4.11       AGENCY  (including data)
```


4.3 KERNEL SITE PARAMETERS

6 PROVIDER

9.2 HELP FRAME

9.4 PACKAGE

Note: You already have the 'PACKAGE' File.

9.6 BUILD

Note: You already have the 'BUILD' File.

9.7 INSTALL

Note: You already have the 'INSTALL' File.

**The PACKAGE,
BUILD, and
INSTALL files were
installed earlier,
when you installed
the standalone KIDS
module.**

9.8 ROUTINE

14.4 TASKS

14.5 VOLUME SET

14.6 UCI ASSOCIATION

14.7 TASKMAN SITE PARAMETERS

14.8 TASK SYNC FLAG

16 PERSON

19 OPTION

19.081 AUDIT LOG FOR OPTIONS

19.1 SECURITY KEY

19.2 OPTION SCHEDULING

40.5 HOLIDAY

49 SERVICE/SECTION

200 NEW PERSON

```

8989.2    KERNEL PARAMETERS

8989.3    KERNEL SYSTEM PARAMETERS

8991.5    XQAB ERRORS LOGGED

8992      ALERT

8992.1    ALERT TRACKING

Install Started for KERNEL - VIRGIN INSTALL 8.0 :
          Apr 22, 1995@15:40:01

Installing Routines...
          Apr 22, 1995@15:40:02

Installing Data Dictionaries: .....
          Apr 12, 1995@15:40:20

Installing Data:
          Apr 12, 1995@15:40:39

Installing PACKAGE COMPONENTS:
          Apr 12, 1995@15:40:40

Updating Routine file... ..

Updating KIDS files... ..

  KERNEL - VIRGIN INSTALL 8.0 Installed.
          Apr 12, 1995@15:40:41

Install Started for KERNEL 8.0:
          Apr 12, 1995@15:40:42

Installing Routines:.....
.....
          Apr 22, 1995@15:41:08

Running Pre-Install Routine: ^XUINPRE
Clean up dangling 99 nodes in the OPTION File.

Installing Data Dictionaries:
.....
..
          Apr 22, 1995@15:42:15

Installing Data:
          Apr 22, 1995@15:42:27

Installing PACKAGE COMPONENTS:

Installing HELP FRAME.....
.....

```

```

Installing BULLETIN.....
Installing SECURITY KEY.....
Installing FUNCTION.....
Installing PRINT TEMPLATE.....
Installing SORT TEMPLATE.....
Installing INPUT TEMPLATE.....
Installing FORM.....
Installing OPTION.....
.....
                Apr 22, 1995@15:45:14

Running Post-Install Routine: ^XUINEND
Move KERNEL site parameters.
  Moving ALERTS from file 200 to file 8992 ...
Delete CPU field from alpha/beta test sites
Option Scheduling conversion.
Beginning TaskMan's post-init conversion...
End of TaskMan's post-init conversion.
Check and clean out XUFILE if not running FOF.
Load PARAM file
TO PROTECT THE SECURITY OF DHCP SYSTEMS, DISTRIBUTION OF THIS SOFTWARE FOR USE
ON ANY OTHER COMPUTER SYSTEM IS PROHIBITED. ALL REQUESTS FOR COPIES OF THE
KERNEL FOR NON-DHCP USE SHOULD BE REFERRED TO YOUR LOCAL ISC.

Updating Routine file... ...
Updating KIDS files... ....

KERNEL 8.0 Installed.
                Apr 22, 1995@15:45:57

No link to PACKAGE file

NO Install Message sent

```

Figure 4-7: Example of virgin installation done at the San Francisco OIFO—Sample user dialogue

While Main Installation is Running (Multi-CPU Systems)

No further action is necessary while the main installation is running.

If the Main Installation Errors Out

If the Main Installation errors out, first determine the cause of the problem. Once you have found the problem and corrected it, invoke ^XPKRN and use the RESTART INSTALL OF PACKAGE(S) option to restart the Kernel installation.

KIDS provides the ability to restart installations that errored out at the point they errored out. This saves you, the installer, from having to re-run the entire installation over again. When you restart an aborted installation using RESTART INSTALL OF PACKAGE(S), the installation resumes from the last completed checkpoint.

14. When Main Installation is Done

When the main installation is done, more steps need to be performed to finish setting up Kernel V. 8.0.

**CONTINUE WORKING IN THE PRODUCTION ACCOUNT
(e.g., VAH)**

15. Reset ZU

**NOW MOVE BACK TO THE MANAGER (LIBRARY) ACCOUNT
(e.g., MGR)**

16. Reset Global Protection For ^%ZUA

17. Implement Routine Mapping (DSM for OpenVMS only)

18. Global Protection, Translation and Journaling

Review global protection, translation, and journaling.

19. Run ^ZISETUP to Create Devices

In MGR: If you have physical ports on your new CPU, run the device setup utility to create devices (D ^ZISETUP). This utility sets up a small set of entries in the DEVICE file (#3.5) for certain devices on your system. You will need to edit the device entries that are added, because they won't have their SUBTYPE fields filled in.

DSM for OpenVMS:

^ZISETUP may set up entries for operator's consoles, TTxx devices, TXxx devices, LPxx devices, and MUxx devices (depending on information available from the system).

MSM-DOS:

^ZISETUP sets up entries for HFS devices, SDP devices, magtape devices, and terminals (depending on information available on the system).

```

>D ^ZISSETUP

THIS ROUTINE INITIALIZES THE DEVICE FILE WITH CURRENT PORT NUMBERS
OK? Y <Enter>

There must be a prefix for a new device because the Device Name and the $I
cannot be the same. This is being for the Single Device File.

Please Enter a Prefix for New Devices: VAH// <Enter>
OPA0:
OPA1:

ALL SETUP

```

Figure 4-8: Creating devices in VAH by running ^ZISSETUP—Sample user dialogue

**NOW MOVE BACK TO THE PRODUCTION ACCOUNT
(e.g., VAH)**

20. Finish DEVICE File Entry for Console Device

In VAH: On MSM-DOS systems, you can identify DEVICE file (#3.5) entry for the console device by its \$I value (which is 1). On DSM for OpenVMS systems, the console device has a \$I value of "OPA0:".

Use FileMan (D Q^DI) to edit the DEVICE file (#3.5) entry for your console device. Fill in the SUBTYPE field in the DEVICE file (#3.5) for the console device. In most cases, setting the SUBTYPE to a value of C-VT100 is adequate.

21. Load MailMan Routines

In order to create run ^XVIRPOST (next step), you need to load the routines for the MailMan V. 7.1 (or higher) software. Do not run the installation for MailMan; however, just load the routines. You will install MailMan in a later step.

22. Run ^XVIRPOST Post-Install Routine

In VAH: The post-install routine for the virgin install, ^XVIRPOST, creates important first entries in several Kernel files. Run ^XVIRPOST, and follow the onscreen instructions for answering questions:

```
>D ^XVIRPOST

Post init for virgin install

Now to add yourself to the NEW PERSON file.
Select NEW PERSON NAME: KRUSER,ONE
  Are you adding 'KRUSER,ONE' as a new NEW PERSON (the 3RD)? Y <Enter> (Yes)
Checking SOUNDEX for matches.
No matches found.
  NEW PERSON INITIAL: OK
  NEW PERSON MAIL CODE: <Enter>
We have added FORUM to the domain file.
Now you need to enter the NETWORK MailMan domain name that will be use on the
network and for the name of the Kernel site parameter entry.
Use the format 'xxx.VA.GOV'
Select DOMAIN NAME: YOURSITE.VA.GOV
  Are you adding 'YOURSITE.VA.GOV' as a new DOMAIN (the 2ND)?
Y <Enter> (Yes)

Now lets add your Institution.
Select INSTITUTION NAME: YOURINST
  Are you adding 'YOURINST' as a new INSTITUTION (the 1ST)?
Y <Enter> (Yes)
  INSTITUTION STATE: CAL
  INSTITUTION FACILITY TYPE: OIFO <Enter> OFFICE OF INFORMATION
FIELD OFFICE
  INSTITUTION STATION NUMBER: 999

Now to add 'IRM' to the service/section file.
>
```

Figure 4-9: Running ^XVIRPOST post-install routine in VAH—Sample user dialogue

23. Install MailMan

In order to edit the first Kernel user (next step), you need to install MailMan V. 7.1. Install MailMan from the console device. Follow the instructions in the *MailMan Installation Guide* to install MailMan. *Be sure to christen your domain* after the installation; to do this, D ^XUP and choose to run MailMan's Christen a Domain option.

24. Finish Setting Up First User Account

In VAH: Use VA FileMan (D Q^DI) to edit the entry in the NEW PERSON file (#200) you created when running ^XVIRPOST. This first account should be for you, the system manager. Note that there will actually be three entries in the NEW PERSON file (#200), the Postmaster and Shared,Mail being the first two.

You will be able to enter values for all needed fields except the PRIMARY MENU field. Fill in the following fields (three dots indicate skipped fields):

```

Want to edit ACCESS CODE (Y/N): Y <Enter> )
FILE MANAGER ACCESS CODE: #
...
SSN: 000999999
...
Select KEY:
...
SERVICE/SECTION:

```

Give yourself an access code.

Enter your Social Security Number.

Enter each of the following keys: XMMGR, XMNET, XMTALK, XUMGR, XUPROG, XUPROGMode, XUAUTHOR, ZTMQ.

Choose one.

Figure 4-10: Setting up first user account—Sample user dialogue

Now, to finish off this account:

- Exit FileMan and return to the M prompt.
- Kill all local variables.
- Use the ^XUP entry point to sign on as the new user (enter the access code of the new user). For terminal type name, in most cases entering C-VT100 and pressing <Enter> should be sufficient.
- When asked for a menu option, enter EVE as the menu option.
- From the main menu, choose User Management. Then choose Edit an Existing User. For a user to edit, enter your new account. Fill in the PRIMARY MENU OPTION field with the option EVE. Exit and save the changes you made to the new account.
- Return to the main menu (System Manager) by pressing <Enter>. Choose the Operations Management menu. Then choose the Kernel Management menu. Then choose the Enter/Edit Kernel Site Parameters option.

Edit the only entry in the file. On the first ScreenMan screen of the entry, fill in a value for DEFAULT INSTITUTION. On the second ScreenMan screen of this option, make an entry for your main volume set, and fill in the Max Sign-ons and Log RT? values for the volume set entry. Set Max Sign-ons to a reasonable value for your system, and set Log RT? to NO. For example:

Vol Set	Max Sign-ons	Log RT?
ROU	150	NO

Figure 4-11: Sample Max Sign-ons for main volume set

- Halt off, and then from the M prompt, log on as the new user using the ^ZU entry point (D ^ZU). For Verify Code, just press Enter. You will then be asked for a verify code (enter a new one).

At this point, the first account (for you, the system manager) should be set up. You will be presented with the System Manager's menu and will be able to add other users and assign keys by using the Kernel options.

Give yourself (the new user) the VA FileMan access code "@". Consult your OIFO or other VA contact person for instructions if you do not know the procedure for doing this.

25. Set Up Device Entries for Virtual Terminals

In VAH: If you have additional terminal devices beyond the console device that need to access Kernel, you may want to set up virtual terminal device entries for virtual terminals.



REF: For more information on virtual terminal devices, please refer to the "Device Handler: System Management" chapter of the *Kernel Systems Management Guide*.

26. Install Kernel Toolkit V. 7.3

Due to interdependencies between Kernel and Kernel Toolkit, the final installation step is to install Kernel Toolkit V. 7.3. Please note the important instructions regarding Kernel V. 8.0 sites in Kernel Toolkit V. 7.3's Preliminary Considerations section (*Kernel Toolkit Installation Guide*). Also, never install Kernel Toolkit V. 7.2 on top of Kernel V. 8.0 (doing so would break Kernel V. 8.0).

You are now done installing Kernel V. 8.0. The task of configuring Kernel is described in the Post-Installation Tasks (Virgin Install) section that follows. Depending on the complexity of your site, it may take some time to configure Kernel. You should allow adequate time to perform the configuration.

Post-Installation Tasks (Virgin Install)

1. **In VAH:** Set up/Review Kernel Site Parameters.

For advice on setting up Kernel and VistA system in general, please refer to the appropriate cookbook for your operating system/hardware type.



REF:

DSM for OpenVMS:

Refer to the most recent *VAX DSM Systems Guide* (otherwise known as the VAX Cookbook).

MSM-DOS:

Refer to the most recent *486 Cookbook and MSM System Managers Guide*.

Edit the KERNEL SYSTEM PARAMETERS (#8989.3) and TASKMAN SITE PARAMETERS (#14.7) files. Include your UCIs in TaskMan's UCI ASSOCIATION file (#14.6). Configure Task Manager.



REF: For more information on the UCI ASSOCIATION file (#14.6) and configuring Task Manager, please refer to the "Task Manager System Management: Configuration" chapter of the *Kernel Systems Management Guide*.

For information on setting up site parameters, please refer to the Implementation and Maintenance section of the *Kernel Technical Manual* and the system management chapters in the *Kernel Systems Management Guide*.

2. Update Routines on other CPUs.

If you are setting up a multi-CPU system where each CPU has its own Manager and Production UCIs, you will need to set up the manager's account and Kernel's routines for each CPU (but you do not need to do a full installation for each CPU).

DSM for OpenVMS systems usually cluster mount the disk(s) holding the Manager and Production UCIs, in which case no further action is necessary.

MSM-DOS systems, on the other hand, are typically set up with each CPU having its own Manager and Production UCIs. For MSM-DOS multi-CPU systems, follow these guidelines to configure additional CPUs:

- a. Set up Manager and Production UCIs on each additional CPU.
- b. Translate globals to the new UCIs (manager and production), create non-translated globals, and review global translation, protection, and journaling.
- c. Load the manager's account routines, and run the manager's account setup routine ^ZTMGRSET, in the Manager UCI of each CPU you are setting up.
- d. Load the KIDS standalone routines in the production UCI for each CPU you are setting up, but do not run ^XPDINIT since this has already been done once.

- e. On the CPU you did the main installation on, run MOVE^XPDCPU to make the Kernel V. 8.0 routines available to the new CPUs via the translated ^XTMP global.
- f. In the production UCI on each of the new CPUs, run INSTALL^XPDCPU to load the Kernel V. 8.0 routines from the ^XTMP global.

Following these steps should install Kernel on each additional CPU.

3. Start Up Task Manager.

In MGR: D ^ZTMB. This enables background tasks to run in Kernel.

4. Review Option Scheduling.
5. Obtain and Load Data for the DOMAIN file (#4.2).

Merge incoming with existing data (do *not* overwrite). Obtain the file from one of your other production accounts or from an OIFO).

6. Optionally Install the OpenVMS EDT or TPU Text Editor.
7. Optionally Customize the Edit User Characteristics Template.
8. Enable Logons.
9. Install Additional Files and Software.

To install additional VistA VA FileMan files, load the software application responsible for the maintenance of that file.

Appendix A: Installing Kernel on Other Platforms

Kernel provides full support for the following centrally procured M implementations used by VA:

- DSM for OpenVMS
- MSM-DOS

Kernel provides secondary support for the following M implementations:

- Intersystems M/SQL
- DataTree DTM-PC

When you run ^ZTMGRSET to set up the manager's account, one of the questions you *must* answer is what M implementation should Kernel install support for. Intersystems M/SQL and DataTree DTM-PC are available choices, along with DSM for OpenVMS and MSM-DOS. Routines and ^%ZOSF global nodes appropriate to the chosen M implementation are loaded by ^ZTMGRSET.

Kernel also supports MSM-Unix. A difference between installing Kernel on MSM-Unix vs. MSM-DOS is that for MSM-Unix, the ^ZTMGRSET routine restores ^%ZISH from ^%ZISHMSU, rather than ^%ZISHMSM.

If you are running on a platform other than the platforms above, your M vendor may be able to provide some additional instructions about installing Kernel and FileMan on your platform. You can also contact your OIFO for any special instructions on how to install with Kernel V. 8.0.

Kernel no longer actively supports M implementations that aren't expected to support the proposed 1995 ANSI M standard. Implementations in this category are DSM-11, M11+, and M/VX.

