MIRA HAMS Software Installation Guide

Order Number: AA-PBFWA-TE

HAMS V1.0

digital equipment france, annecy

Release Version 1.0, 20 March 1990

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This document was prepared using VAX DOCUMENT, Version 1.1

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Preface

Scope

This manual describes how to install MIRA HAMS Software on the MicroVAX MIRA AS system.

Intended Audience

This manual is intended for the following personnel:

- System managers, who are responsible for maintaining and managing a MIRA AS system.

Graphics Conventions

The following conventions are used throughout this manual:

- **BOLD** is used in examples to indicate user input.
- BLACK TYPE represents system prompts or displays.
- UPPERCASE represents actual characters that you enter in commands.
- [ ] indicates that characters between square brackets in commands may be omitted.
- { } indicates that you must enter one of the command options given between braces.

Related Publications

Table 1: Related Publications

Title	Order Number
MIRA AS Pocket Service Guide	EK-MIRAS-PS
HAMS Software Installation Guide	AA-PBFWA-TE
HAMS User's Guide	AA-PBFXA-TE
MIRA AS Hardware Installation and Maintenance Guide	EK-MIRAS-MG
MicroVAX Diagnostic Monitor User's Guide	AA-FM7A-DN
MicroVAX Systems Maintenance Guide	EK-001AA-MG
MicroVAX 3400 VAXserver 3400 installation	EK-160AA-IN
MicroVAX 3800 VAXserver 3800 installation	EK-164AA-IN
MicroVAX Site Preparation	EK-239AC-SP
MicroVAX 3400 Operation	EK-161AA-OM
MicroVAX 3800 Operation	EK-165AA-OM
MicroVAX 3400 Troubleshooting and Diagnostics	EK-019AE-SG
MIRA AS MV3400 Field Maintenance Print set	MP-02915-01
MIRA AS MV3800 Field Maintenance Print set	MP-02916-01
MIRA AS VXSV3400 Field Maintenance Print set	MP-02917-01
MIRA AS VXSV3800 Field Maintenance Print set	MP-02918-01
MIRA AS/HAMS Video Training	EY-F112E-PO.001

Chapter 1

Preparing to Install MIRA HAMS

This chapter discusses the preparations and requirements necessary for installing MIRA HAMS on the MIRA AS system.

Your bill of materials (BOM) and indented bills report (BIL) specify the number and contents of your media. Be sure to verify the contents of your kit with this information. If your kit is damaged or if you find that parts of it are missing, contact your Digital representative.

MIRA HAMS provides online release notes. Digital strongly recommends that you read the release notes before proceeding with the installation. For information on accessing the online release notes, see Section 2.1.

1.1 Special Considerations for performing HAMS Installation

High Availability Management Software (HAMS) is the software component of Digital MIRA AS High Availability Architecture. MIRA AS systems are computer systems which provide high availability via dynamic redundancy. Please refer to the HAMS User's Guide for more details about the implementation of this architecture.

MIRA AS systems are built so that Single Points of Failure (SPOF) can be completely eliminated. This is achieved by duplication of Hardware and Software components.

The following chapters describe in detail the software installation procedure for HAMS.

1.2 Required Operating System Components

The VMS operating system comes with a variety of support options, or classes. Classes include such features as networking and RMS journaling.

For a complete list of the classes required to use MIRA HAMS, see the Software Support Addendum (SSA), which comes with the Software Product Description (SPD).

1.3 Prerequisite Hardware

Table 1–1 describes the hardware items needed to install MIRA HAMS.

Table 1–1: Hardware Requirements for Installing MIRA HAMS

Item	Purpose
MIRA AS dual MicroVAX System	Host Computer System
MIRA AS Hardware Installation and Maintenance Guide	Installation of hardware

1.4 Prerequisite and Optional Software

Table 1–2 provides information on the software you must have installed on your system before installing MIRA HAMS. The System Software Addendum (SSA) contains a complete list of prerequisite and optional software and their required version numbers.

Table 1–2: Prerequisite and Optional Software Table

Prerequisite Products	Purpose
VMS Version 5.3	Operating system
VAX Ada Version V2.0	If HAMS is to be accessed from applications in an Ada environment

1.5 License Registration

You must register the MIRA HAMS license through the VMS License Management Facility (LMF) in accordance with the license agreement signed by your site. The license registration information you need is contained in the Product Authorisation Key (PAK) that is shipped with MIRA HAMS. The PAK is a paper certificate that contains information about the license to run a particular piece of software.

During the installation, the system asks whether you have registered the MIRA HAMS license and loaded the appropriate PAK. You must register and load your license for MIRA HAMS *before* you start the installation in order to run the Installation Verification Procedure (IVP) and use the software.

The same PAK has to be loaded on each computer of the MIRA AS dual MicroVAX system.

In addition, you should have registered and loaded PAKs for all the prerequisite softwares that are listed in Table 1–2 before attempting to install MIRA HAMS.

To register a license under VMS, first log in to the system manager's account, SYSTEM. You then have a choice of two ways to perform the registration:

- Invoke the SYS$UPDATE:VMSLICENSE.COM procedure. When it prompts you for information, respond with data from your PAK.
- At the DCL prompt, enter the LICENSE REGISTER command with the appropriate qualifiers that correspond to PAK information.

If you plan to use MIRA HAMS on more than one node in a VAXcluster, you will need to perform a license load on the other nodes after you complete this installation.

For complete information on using LMF, see the manual on the License Management Utility in the VMS documentation set.

1.6 VAXcluster Considerations

MIRA HAMS can be installed on a MIRA AS system belonging to a VAXcluster. The following should be noted:

1. The installation procedure will put executable files and general command files in the **common root** directories.
2. The installation procedure will put the HAMS specific procedures in the **specific root** directories.
3. The MIRA AS system, once running, will put the events log file in the **specific root** directories.

The software installation procedure need only be run once per system disk per licensed MIRA AS MicroVAX in your cluster.

NOTE

Digital strongly recommend that MIRA AS systems do not rely on only one common system disk.

1.7 Installation Procedure Requirements

This section and those that follow discuss various requirements for installing MIRA HAMS.

Installing MIRA HAMS and running the Installation Verification Procedure (IVP) on a standalone MicroVAX 3800 system takes approximately 5 to 8 minutes depending on whether you install Ada or not.

MIRA HAMS must be installed on **both** MIRA AS systems.

1.7.1 Privileges and Disk Space

To install MIRA HAMS and run the Installation Verification Procedure (IVP) , you must be logged in to an account that has SETPRV.

Note that during installation VMSINSTAL suspends BYPASS privilege.

MIRA HAMS's requirements for free disk storage space are different during installation and after installation. Table 1–3 summarizes the storage requirements.

Table 1–3: Disk Space Requirements

Kit	Blocks During Installation	Blocks After Installation
MIRA HAMS Version V1.0	4200	4000

To determine the number of free disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$ SHOW DEVICE SYS$SYSDEVICE
```

1.7.2 System Parameters

Installing MIRA HAMS requires certain system parameter settings. Table 1–4 lists the minimum required system parameter values for the installation. (Depending on the kinds of programs and applications running at your site, you might need higher values for some settings.)

Table 1–4: Required System Parameter Values

System Parameter	Value
GBLPAGES [2]	10000
GBLSECTIONS[2]	250

[2]These dynamic system parameters must be set permanently to values equal to or greater than the values listed. Do not lower these values after the installation.

The following sections show you how to:

- Check system parameter values
- Calculate values for the GBLPAGES and GBLSECTIONS system parameters
- Change parameter values with the VMS AUTOGEN command procedure
- Set dynamic parameters (such as CLISYMTBL) with the VMS System Generation Utility (SYSGEN)

1.7.2.1 Checking System Parameter Values

To check the values of your system parameters, enter the following command at the DCL prompt to invoke the System Generation Utility (SYSGEN):

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN>
```

At the SYSGEN> prompt, enter the SHOW command to display the value of a system parameter. The values displayed should equal or exceed the value of each system parameter listed in Table 1–4. The following example displays the value for the GBLPAGES system parameter:

```
SYSGEN>  SHOW GBLPAGES
Parameter Name              Current   Default   Minimum   Maximum Unit  Dynamic
--------------              -------   -------   -------   ------- ----  -------
GBLPAGES                      41400     10000       512        -1 Pages
SYSGEN>
```

After checking the parameters with the SHOW command, enter the EXIT command at the SYSGEN> prompt to return to DCL level.

1.7.2.2 Calculating the Values for GBLPAGES and GBLSECTIONS

To install and run MIRA HAMS, you must have sufficient free global pages and global sections. You must first find out how many free global pages and sections you have on your system. Then use AUTOGEN if you need to increase the GLBPAGES and GBLSECTIONS system parameters.

You can use the WRITE command with the F$GETSYI lexical function to find the number of free global pages and global sections. The following example shows how to get this information at your terminal (the default for SYS$OUTPUT):

```
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLPAGES")
15848
$ WRITE SYS$OUTPUT F$GETSYI("FREE_GBLSECTS")
24
```

If the values displayed by the system are greater than the values in Table 1–4, you do not need to increase the values for these parameters. If the value of free global pages or global sections is less than the value in Table 1–4, you must increase the system parameter setting.

Section 1.7.2.3 describes the procedures for increasing these values using AUTOGEN.

1.7.2.3 Changing System Parameter Values with AUTOGEN

Use the AUTOGEN command procedure to change system parameters. AUTOGEN automatically adjusts values for parameters that are associated with the values you reset manually. To change system parameters with AUTOGEN, edit the following file:

```
SYS$SYSTEM:MODPARAMS.DAT
```

Use an editor to access the file. To change a parameter value listed in this file, delete the current value associated with that parameter and add the new value.

To modify incremental parameters such as GBLPAGES and GBLSECTS, use ADD_. For example, to increase the global page setting of GBLPAGES from an existing value of 5000 to a new value of 10000:

- Edit SYS$SYSTEM:MODPARAMS.DAT and
- ADD_GBLPAGES=5000

To increase the global sections setting of GBLSECTIONS from an existing value of 50 to a new value of 250:

- Edit SYS$SYSTEM:MODPARAMS.DAT and
- ADD_GBLSECTIONS=200

Note that when you set the page file quota, do not use a value that exceeds the amount of page file space available on the system.

After you make all your changes, exit from the editor and execute the AUTOGEN procedure to recalculate your system parameters. Enter the following command at the DCL prompt:

```
$ @SYS$UPDATE:AUTOGEN GETDATA REBOOT
```

When you specify REBOOT, AUTOGEN performs an automatic system shutdown and then reboots the system. Any users logged on to the system are immediately disconnected during the shutdown. The automatic reboot puts the new parameter values into effect.

The AUTOGEN Utility automatically adjusts some of the SYSGEN parameters based on the consumption of resources since the last reboot. If you do not want to take advantage of this automatic adjustment, include the NOFEEDBACK qualifier on the AUTOGEN command line.

For more information about using AUTOGEN, see the VMS System Management Subkit.

If the dynamic parameter values on your system are less than the values previously listed, use the following series of commands to change the values. This example changes the CLISYMTBL value to 250.

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> USE ACTIVE
SYSGEN> SET CLISYMTBL 250
SYSGEN> WRITE ACTIVE
SYSGEN> EXIT
```

1.7.3 Process Account Quotas

The account you use to install MIRA HAMS must have sufficient quotas to enable you to perform the installation. Table 1–5 summarizes the process quotas required for the installation account.

Table 1–5: Process Account Quotas for the Installing Account

Account Quota	Value
BYTLM	32,768
ENQLM	200
FILLM	40

Table 1–5 (Cont.): Process Account Quotas for the Installing Account

Account Quota	Value
PRCLM	10
WSDEF	256[1]

[1]The values for WSEXT and WSQUO must be equal to or greater than the WSDEF value.

User account quotas are stored in the file SYSUAF.DAT. Use the VMS Authorize Utility (AUTHORIZE) to verify and change user account quotas. First set your directory to SYS$SYSTEM and then run AUTHORIZE:

```
$ SET DEFAULT SYS$SYSTEM
$ RUN AUTHORIZE
UAF>
```

At the UAF> prompt, enter the SHOW command with an account name to check a particular account. For example:

```
UAF> SHOW SMITH
```

To change a quota, enter the MODIFY command. The following example changes the FILLM quota for the SMITH account and then exits from the utility:

```
UAF> MODIFY SMITH /FILLM=40
UAF> EXIT
```

After you exit from the utility, the system displays messages indicating whether or not changes were made. Once the changes have been made, you must log out and log in again for the new quotas to take effect.

For more information on modifying account quotas, see the description of the Authorize Utility in the VMS System Management Subkit.

1.7.4 VMSINSTAL Requirements

When you invoke VMSINSTAL, it checks the following:

- Whether you have set your default device and directory to SYS$UPDATE
- Whether you are logged in to a privileged account

- Whether you have adequate quotas for installation
- Whether any users are logged in to the system

Note that the VMSINSTAL requires that the installation account have a minimum of the following quotas:

ASTLM = 24
BIOLM = 18
BYTLM = 18,000
DIOLM = 18
ENQLM = 30
FILLM = 20

If VMSINSTAL detects any problems during the installation, it notifies you and asks if you want to continue the installation. In some instances, you can enter YES to continue. To stop the installation process and correct the situation, enter NO or press RETURN. Then correct the problem and restart the installation.

1.7.5 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Digital recommends that you do a system disk backup before installing any software.

Use the backup procedures that are established at your site. For details on performing a system disk backup, see the section on the Backup Utility in the VMS System Management Subkit.

1.7.6 MIRA HAMS Requirements

At the beginning of the installation, if the HAMS Ada package is needed, VMSINSTAL will check if the ADA Product Authorisation Key is registered and loaded. Note that in this case the IVP is always run. Otherwise, the installation will be aborted.

Chapter 2

Installing MIRA HAMS

This chapter explains how to install MIRA HAMS. Section 2.1 contains a step-by-step description of the installation procedure.

2.1 The Installation Procedure

The MIRA HAMS installation procedure consists of a series of questions and informational messages. See Appendix A for a sample installation.

To abort the installation procedure at any time, press CTRL/Y. When you press CTRL/Y, the installation procedure deletes all files it has created up to that point and exits. You can then start the installation again.

1. **Invoke VMSINSTAL.**

```
@SYS$UPDATE:VMSINSTAL saveset-name device-name OPTIONS N
```

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. VMSINSTAL is in the SYS$UPDATE directory. The following list defines the elements of the VMSINSTAL command procedure:

saveset-name
The installation name for the component. For MIRA HAMS, use the following installation name:

```
HAMS010
```

device-name

The name of the device on which you plan to mount the media. For example, MUA0: is the device name for a tape drive. It is not necessary to use the console drive for this installation. However, if you do use the console drive, you should replace any media you removed once the installation is complete.

OPTIONS N

An optional parameter that indicates you want to see the question on release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not ask you about the release notes. You should review the release notes before proceeding with the installation in case they contain additional information about the installation. If you are restarting the installation and have already reviewed the release notes, you do not need to specify OPTIONS N.

Note that there are several other options you can select when you invoke VMSINSTAL.

- Auto_answer option (A): Initially creates a file that contains your answers to VMSINSTALL questions and prompts. You can then use the option (and the answer file) to save time during a reinstallation (typically after upgrading your system).
- Get save set option (G): Lets you store product save sets temporarily on a magnetic tape or in a disk directory.
- File log option (L): Logs all activity to the terminal during installation.
- Alternate root option (R): Lets you install the product to a system root other than that of the running system.

See the VMS documentation on software installation in the VMS System Management Subkit for detailed information on these options. If you specify more than one option, separate the options with commas (OPTIONS A,N).

The following example invokes VMSINSTAL to install MIRA HAMS from tape drive MUA0: and shows the system response. This example uses the OPTIONS N release note parameter.

```
$ @SYS$UPDATE:VMSINSTAL HAMS010 MUA0: OPTIONS N

      VAX/VMS Software Product Installation Procedure V5.3


It is 14-NOV-1989 at 14:31.
Enter a question mark (?) at any time for help.
```

If you do not supply either the product name or the device name, VMSINSTAL prompts you for this information later in the installation procedure. VMSINSTAL does not prompt you for any options, so be sure to include OPTIONS N on the VMSINSTAL command line to access the release notes during the installation.

2. **Confirm system backup.**

```
* Are you satisfied with the backup of your system disk [YES]?
```

VMSINSTAL asks if you are satisfied with your system backup. You should always back up your system disk before performing an installation. If you are satisfied with the backup of your system disk, press RETURN. Otherwise, enter NO to discontinue the installation. After you back up your system disk, you can restart the installation.

3. **Mount the media.**

```
Please mount the first volume of the set on MUA0:.
* Are you ready? YES
%MOUNT-I-MOUNTED, HAMS mounted on LODNOD$MUA0:
The following products will be processed:

  HAMS V1.0

    Beginning installation of HAMS V1.0 at 14:32

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
```

You should now mount the first distribution volume on the device you specified when you invoked VMSINSTAL. The device name appears in the line preceding the question. VMSINSTAL then asks you if you are ready to continue with the installation.

If you respond YES to indicate that you are ready, VMSINSTAL displays a message that the media containing MIRA HAMS has been mounted on the specified device and that the installation has begun.

If you entered the wrong device name when you invoked VMSINSTAL and need to restart the installation, enter NO in response to the ''Are you ready?'' question. To abort the installation for other reasons, press CTRL/Y.

4. **Select a release notes option.**

```
Release notes included with this kit are always copied to SYS$HELP.

Additional Release Notes Options:

 1.  Display release notes
 2.  Print release notes
 3.  Both 1 and 2
 4.  None of the above

* Select option [2]:
```

If you specified OPTIONS N when you invoked VMSINSTAL, you are now asked to choose one of the four options for reviewing the release notes.

If you select option 1, VMSINSTAL displays the release notes immediately on the console terminal. You can terminate the display at any time by pressing CTRL/C.

If you select option 2, VMSINSTAL prompts you for the name of the print queue that you want to use:

```
* Queue name [SYS$PRINT]:
```

You can press RETURN to send the file to the default output print device or you can enter another queue name.

If you select option 3, VMSINSTAL displays the release notes immediately on the console terminal and then prompts you for a queue name for the printed version.

Select option 4 if you have already reviewed the release notes and are restarting the installation.

(Note that hardcopy release notes are included with the documentation set for MIRA HAMS.)

Next, VMSINSTAL displays the following question:

```
* Do you want to continue the installation [N]?: YES
%VMSINSTAL-I-RELMOVED, The product's release notes have been
                                successfully moved to SYS$HELP.
```

To continue the installation, enter YES. Otherwise, press RETURN. In either case, the release notes are copied to a file in the SYS$HELP directory:

```
SYS$HELP:HAMS010.RELEASE_NOTES
```

After the installation, you can enter the following command to review the release notes through the Help facility:

```
$ HELP HAMS RELEASE_NOTES
```

NOTE

The name of the release notes file installed by VMSINSTAL consists of the current product name and version number. Do not delete release notes for previous versions of MIRA HAMS.

5. **Purge files.**

```
* Do you want to purge files replaced by this installation [YES]?
```

You have the option to purge files from previous versions of MIRA HAMS that are superseded by this installation. Purging is recommended; however, if you need to keep files from the previous version, enter NO in response to the question.

6. **Respond to license registration queries.**

```
Product:       HIGH-AVAIL-MGMT-SW
Producer:      DEC
Version:       1.0
Release Date:  16-Mar-90

* Does this product have an authorisation key registered and loaded?
```

The installation procedure displays license information about your product and then asks if you have registered and loaded your Product Authorisation Key (PAK).

If you have not registered and loaded your PAK, you must answer NO to this question. You have to register and load your PAK to successfully complete the installation. If you have not done so, you should stop the installation, register and load your PAK, and then restart the installation.

7. **Request installation of HAMS Ada package.**

```
* Is HAMS-ADA interface needed
                    (VAX-ADA must be licensed on this system) [No]?
```

The installation procedure now asks if you want to install the HAMS Ada package. If you answer YES to this question, the installation procedure tests if Ada is licensed on your system. If not, it displays a message telling you that VAX-ADA is not licensed on your system and then installation is aborted.

8. **Check for MIRA AS Watchdog driver already installed.**

At this point, the installation procedure checks if UJA0 Watchdog device unit is already known by the system. If yes, the installation procedure tells you to reboot the system to properly run the Installation Verification Procedures (IVP).

9. **Choose the Installation Verification Procedure (IVP) option.**

```
* Do you want to run the IVP after the installation [YES]?
```

The installation procedure now asks if you want to run the IVP. The IVP for MIRA HAMS checks to be sure that the installation is successful. It is recommended that you run the IVP.

Notice that the installation procedure does not ask this question if you have previously answered YES to the question about HAMS-ADA package. In this case, the IVP is automatically run.

Notice also that the installation procedure does not ask this question if you have not registered and loaded your HAMS PAK. In this case, the IVP cannot be run.

After MIRA HAMS is installed, and with your HAMS PAK registered and loaded, you can run the IVP independently to verify that the software is available on your system.

The Installation Verification Procedure checks:

1. The MIRA AS Watchdog Driver.
2. The HAMS Operator Interface.
3. The HAMS Application Interface. . . .

The Installation Verification Procedure calls the following command file:

SYS$TEST:HAMS$IVP.COM

If a problem occurs during the IVP, you could compare two files located in the SYS$TEST directory. One of these files contains the intended output of a given test, and the other will contain the actual output obtained. Table 2–1 gives the names of these files for each IVP test that is run.

Table 2–1: IVP Test Result Files in SYS$TEST:

IVP Test	Actual Output	Intended Output
HAMS Driver	HAMS$UJ_OUTPUT.DAT	HAMS$UJ_RESULT.DAT
HAMS Operator Interface	HAMS$OI_OUTPUT.DAT	HAMS$OI_RESULT.DAT
HAMS Application Interface	HAMS$AI_OUTPUT.DAT	HAMS$AI_RESULT.DAT
HAMS Ada Interface	HAMS$ADA_OUTPUT.DAT	HAMS$ADA_RESULT.DAT

10. **Read informational messages.**

    At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. There are no further questions. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories, updates help files, and updates DCL tables, if necessary. If you chose to have files purged, that work is done now. The following messages are displayed:

```
%VMSINSTAL-I-RESTORE, Restoring product saveset B...
```

    (The following one only if you choose the HAMS-ADA interface :)

```
%VMSINSTAL-I-RESTORE, Restoring product saveset C...

%VMSINSTAL-I-MOVEFILES, files will now be moved to their
                                    target directories...
```

11. **Observe the installation Verification Procedure (IVP).**

    If you chose to run the IVP, VMSINSTAL runs it now. When the IVP runs successfully, you see the following display:

```
Beginning the HAMS Installation Verification Procedure

The MIRA AS Watchdog Driver has been tested successfully

The HAMS Operator Interface Software has been tested successfully

The HAMS Application Interface Software has been tested successfully

The 1.0 Installation Verification Procedure has been
                                    run successfully
```

12. **End the installation procedure.**

```
Installation of MIRA HAMS V1.0 completed at 14:35

VMSINSTAL procedure done at 14:35
```

The previous messages indicate that the entire installation procedure is complete.

You can now log out of the privileged account:

```
$ LOGOUT
SYSTEM     logged out at 14-NOV-1989 14:36:15.11
```

Note that VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the system manager's account and you want to restore these symbols, you should log out and log in again.

2.2 Error Recovery

If errors occur during the installation itself or when the Installation Verification Procedure (IVP) is running, VMSINSTAL displays failure messages. If the installation fails, you see the following message:

```
%VMSINSTAL-E-INSFAIL, The installation of MIRA HAMS V1.0
                                                    has failed.
```

If the IVP fails, you see these messages:

```
The MIRA HAMS V1.0 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for MIRA HAMS V1.0 has failed.
```

Errors can occur during the installation if any of the following conditions exist:

- The operating system version is incorrect.

- Quotas necessary for successful installation are insufficient.
- The VAX Ada programming language is not licensed.
- The product license has not been registered and loaded.
- The MIRA AS Watchdog driver is off_line.

For descriptions of the error messages generated by these conditions, see the VMS documentation on system messages, recovery procedures, and VMS software installation. If you are notified that any of these conditions exist, you should take the appropriate action as described in the message. For information on installation requirements, see Chapter 1.

Chapter 3

Configuring Your System

This section provides information about special system arrangements and configuration procedures that you need to perform after installing MIRA HAMS.

When the HAMS software installation is complete and the Installation Verification Procedure has been successfully executed, you should configure your system.

This is done from the SYSTEM account, by executing the command file SYS$MANAGER:HAMS$CONFIG.COM.

3.1 Running the HAMS$CONFIG.COM procedure

The HAMS configuration procedure:

1. Defines logical names associated with this product,
2. Defines symbols for image activations,
3. Requests user specific default start parameters which will be used if the user chooses to automatically start HAMS at system startup,
4. Creates the HAMS$STARTUP.COM command file.

If any HAMS$STARTUP.COM command file exists in SYS$STARTUP: directory, the HAMS configuration procedure asks you whether you want to create a new file or not. If you answer no, the procedure exits without creating a new HAMS$STARTUP.COM

3.1.1 Defining HAMS START parameters

The following questions concern local variations to the setup of the HAMS software.

The replies to the questions determine the parameters of the HAMS START command.

If you make mistakes when answering the previous questions, the question is asked again.

3.1.1.1 * Timer value to start HAMS?

Specifies the time in seconds between two consecutive triggering operations. You should enter a value in seconds, in decimal or integer format. Your answer will be truncated to one place of decimals. The default answer is 2 seconds. Minimum value is 300 milliseconds (0.3 seconds). Maximum value is 27 seconds.

3.1.1.2 * Delay value to start HAMS?

Specifies the length of time in seconds that the local system waits for the remote system to start. You should enter a value in seconds, in decimal or integer format. Your answer will be truncated to one place of decimals. The default answer is 5 seconds. Minimum value is 600 milliseconds (0.6 seconds). Maximum value is 59 seconds. **The delay value must be more than two times the timer value**.

3.1.1.3 * Should clock synchronisation be periodically rescheduled?

Request the synchronisation of the system clocks of the two computers at specified intervals. The default answer of NO means that the clocks will be synchronised once at startup. If the answer is YES, the clock synchronisation reschedule interval is requested next.

3.1.1.4 * Clock synchronisation reschedule interval?

This question is asked only if you have answered YES to the previous question. You should enter a value in VMS Delta Time format. Thus a reschedule interval of 12 hours would be specified by /CLOCK=12:00 The value can be 0 or must be greater or equal to 1 minute.

3.1.1.5 * Initialisation file name?

You should specify the name of a file containing HAMS commands to initialize the application and device databases. The default file name is HAMS$INITIALIZATION.COM.

3.1.1.6 * Is there a Failover Command File?

If the answer is NO, no failover command file will be submitted if the remote system fails. If the answer is YES, the Failover Command file is requested next.

3.1.1.7 * Failover Command file name?

This question is only asked if you replied YES to the previous question. You should specify the name of a file containing DCL commands to be executed in the case of a system failover. There is no default file name.

3.1.1.8 * Do you want to validate all your previous responses

The HAMS configuration procedure now displays a summary of the given answers.

If you are satisfied with all your answers press RETURN. Otherwise enter "N".The system then asks you all the questions again.

3.2 Using the HAMS$STARTUP.COM file

If you want HAMS to start automatically when the system is started, you should add the invocation of HAMS$STARTUP.COM in the system startup file SYS$STARTUP:SYSTARTUP_V5.COM

Alternatively HAMS$STARTUP.COM may be invoked after system startup by entering, after the dollar prompt,

@SYS$STARTUP:HAMS$STARTUP

You can modify the action of the HAMS$STARTUP.COM file by supplying a parameter. There are two possibilities:

1. HAMS$STARTUP DEFLOG

   - Sets up HAMS logical names and global symbols.
   - Installs shared images.
   - HAMS software is not started.

2. HAMS$STARTUP (no parameters)

   - Sets up HAMS logical names and global symbols.
   - Installs shared images.
   - Starts the HAMS software.

If you want to regenerate the HAM$STARTUP.COM file by running HAMS$CONFIG.COMyou should delete all previous versions of the file.

3.3 Editing the HAMS Initialisation file

The HAMS initilisation file contains HAMS commands that are executed to initialize the application and device database.

By default, the HAMS installation procedure provides a HAMS initialisation template file called HAMS$INITIALIZATION.COM located in the SYS$MANAGER common directory. System managers should use this file to create the system specific HAMS initialisation file, as described in the HAMS User's Guide.

The name of the specific initialisation file is asked when you run the configuration procedure. (See Section 3.1.1.5). The name used by default by HAMS to initialize the application and device databases is SYS$MANAGER:HAMS$INITIALIZATION.COM.

Please refer to the HAMS User's Guide for guidelines on how to edit this file.

Chapter 4

After Installing and Configuring MIRA HAMS

The following tasks can take place after installing MIRA HAMS:

- Running the Installation Verification Procedure separately.
- Editing the system startup and shutdown files.
- Making the product usable on a VAXcluster.
- Enhancing performance.
- Reporting problems.

4.1 Running the Installation Verification Procedure separately

You usually run the Installation Verification Procedure (IVP) during installation. If you want to run the IVP separately to ensure the integrity of installed files should system problems occur, be sure that HAMS is stopped and then, execute the following command procedure:

```
$ @SYS$TEST:HAMS$IVP
```

4.2 Editing the System Files

You must edit the system startup files to provide for automatic startup of MIRA HAMS when your system is rebooted.

Add the command line that starts MIRA HAMS to the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM.

```
$ @SYS$STARTUP:HAMS$STARTUP.COM
```

4.3 VAXcluster considerations

If you plan to use MIRA HAMS on more than one node in a VAXcluster, you will need to perform a license load on the other nodes.

You should also run the HAMS$CONFIG.COM procedure on each node in your cluster that will use MIRA HAMS and create the appropriate specific initialisation files.

4.4 Enhancing MIRA HAMS Performance

This section includes information on system tuning and explains how to install MIRA HAMS shared images. MIRA HAMS includes two shared images which have to be linked with any user applications to let them taking advantages of the HAMS facilities (see MIRA HAMS User's Guide for more details). These shared images are:

SYS$MESSAGE:HAMS$MSG.EXE
SYS$SHARE:HAMS$AMSAI_SHR.EXE

Notice that if you run HAMS$STARTUP.COM command file, it installs specified shared images for you.

In order to enhances the performance of selected shareable images, let them known to the system using VMS INSTALL facility. It is recommended that you install MIRA HAMS shared images as shared on a system that has been rebooted recently because the available space in the global page table is less likely to be fragmented.

Invoke the VMS Install Utility from a privileged account and then install MIRA HAMS as a shared image:

```
$ INSTALL
INSTALL> ADD SYS$SHARE:HAMS$AMSAI_SHR.EXE /SHARED/PROTECT
INSTALL> ADD SYS$MESSAGE:HAMS$MSG.EXE /SHARED
INSTALL> EXIT
```

To install MIRA HAMS as a shared image, first, determine the number of available global pages and global sections on your system. See Section 1.7.2.2 for information on how to verify and modify the number of global pages and global sections. Table 1–4 contains the guidelines for setting these parameters.

4.5 User Account Requirements

To work with MIRA HAMS, user accounts on your system must have certain privileges and quotas. The next two sections contain information on these requirements. (The third section discusses how to set up user accounts.)

4.5.1 Privileges

To use MIRA HAMS, each account must have at least the privileges required by the command, the user tries to execute. See the MIRA HAMS User's Guide for the Operator Interface command descriptions and required privileges. Use the VMS Authorize Utility to determine whether users have the privileges they require.

4.5.2 User Account Quotas

You must make sure that the appropriate user accounts have sufficient quotas to be able to use MIRA HAMS. Table 4–1 summarizes the required user account quotas.

Table 4–1: User Account Quotas for Using MIRA HAMS

Account Quota	Value
BYTLM	32,768
ENQLM	200
FILLM	40
PRCLM	10
WSDEF	256[1]

[1]The values for WSEXT and WSQUO must be equal to or greater than the WSDEF value.

See Section 1.7.3 for a description of how to verify and change account quotas.

4.6 Determining and Reporting Problems

If you encounter a problem while using MIRA HAMS, report it to Digital. Depending on the nature of the problem and the type of support you have, you can take one of the following actions:

- Call Digital if your software contract or warranty agreement entitles you to telephone support.
- Submit a Software Performance Report (SPR).
- Fill out and submit a Reader's Comments form if the problem has to do with the MIRA HAMS documentation. There are Reader's Comments forms at the back of each manual. Use the form from the manual in which you found the error. Include the section and page number.

Review the Software Product Description (SPD) and Warranty Addendum for an explanation of warranty. If you encounter a problem during the warranty period, report the problem as indicated above or follow alternate instructions provided by Digital for reporting SPD nonconformance problems.

4.7 Post-installation Procedures

Do not forget to log out, in order to delete all the logical names and global symbols created by the VMSINSTAL.COM command file.

Appendix A
Sample Installation

This appendix contains a sample installation of MIRA HAMS. This sample was run on a system that had no previous version of MIRA HAMS installed.

The sample installation assumes that DECnet is running, that there are users logged on to your system, and that OPTIONS N has been specified to print the release notes. The Installation Verification Procedure (IVP) runs at the end of the installation.

A.1 HAMS Kit including Ada package

This section contains a sample installation for the MIRA HAMS Kit including installation of the HAMS-ADA package.

```
$ @sys$update:vmsinstal hams010 sys$manager: options n

 VAX/VMS Software Product Installation Procedure V5.3

It is 14-NOV-1989 at 14:31.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? YES

The following products will be processed:

  HAMS V1.0

 Beginning installation of HAMS V1.0 at 14:32

%VMSINSTAL-I-RESTORE, Restoring product saveset A ...

    Release notes included with this kit are always copied to SYS$HELP.

    Additional Release Notes Options:
```

```
        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  None of the above

* Select option [2]: 4
* Do you want to continue the installation? YES
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
  moved to SYS$HELP.

* Do you want to purge files replaced by this installation [YES]? YES

        Product:      HIGH-AVAIL-MGMT-SW
        Producer:     DEC
        Version:      1.0
        Release Date: 16-Mar-90

* Does this product have an authorisation key registered and loaded? YES
* Is HAMS-ADA interface needed (VAX-ADA must be licensed on this system) [No]? Y

     One version of the UJDRIVER is already loaded. Until the system can
     be rebooted to activate the new driver, the Installation Verification
     Procedure (IVP) is not testing the newly installed driver.When your
     installation is complete, to properly test the new driver, please
     add the invocation of UJSTARTUP.COM procedure in your system command
     file : SYS$STARTUP_V5.COM and then, reboot the system and run the
     Installation Verification Procedure with the following command:
     @SYS$TEST:HAMS$IVP

* Do you want to run the IVP after the installation [YES]?

     The HAMS$STARTUP.COM command file which starts the HAMS software is
     located on the SYS$STARTUP directory. This command file is generate
     by the HAMS$CONFIG.COM pocedure. After the installation, please execute
     the HAMS$CONFIG.COM procedure to ensure a correct configuration of
     your system.

     If you want to start HAMS software at system startup, you have to
     add the invocation of this file in your SYS$STARTUP:SYSTARTUP_V5.COM
     command file.

     All inquiries have been requested. If no errors occur, the
     installation will be completed in about 8 minutes.

%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
%VMSINSTAL-I-SYSDIR, This product creates system disk directory VMI$ROOT:[SYSLI
B.HAMS$ADALIB$NEW].
%VMSINSTAL-I-RESTORE, Restoring product saveset C ...
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

  Beginning the HAMS Installation Verification Procedure.

  The MIRA AS Watchdog Driver has been tested successfully.

  The HAMS Operator Interface Software has been tested successfully.

  The HAMS Application Interface Software has been tested successfully.
```

```
  The HAMS V1.0 standard Installation Verification Procedure has been run
  successfully

  The HAMS V1.0 product has been installed successfully

 Installation of HAMS V1.0 completed at 14:35

 VMSINSTAL procedure done at 14:35

$
```

A.2 HAMS Kit without Ada package

This section contains a sample installation for the MIRA HAMS Kit without installing the HAMS-ADA package.

```
$ @sys$update:vmsinstal hams010 sys$manager: options n

 VAX/VMS Software Product Installation Procedure V5.3

It is 14-NOV-1989 at 14:31.
Enter a question mark (?) at any time for help.

* Are you satisfied with the backup of your system disk [YES]? YES

The following products will be processed:

  HAMS V1.0

 Beginning installation of HAMS V1.0 at 14:32

%VMSINSTAL-I-RESTORE, Restoring product saveset A ...

    Release notes included with this kit are always copied to SYS$HELP.

    Additional Release Notes Options:

        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  None of the above

* Select option [2]: 4
* Do you want to continue the installation? YES
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
  moved to SYS$HELP.

* Do you want to purge files replaced by this installation [YES]? YES

        Product:      HIGH-AVAIL-MGMT-SW
        Producer:     DEC
        Version:      1.0
        Release Date: 16-Mar-90

* Does this product have an authorisation key registered and loaded? YES
* Is HAMS-ADA interface needed (VAX-ADA must be licensed on this system) [No]?
```

```
     One version of the UJDRIVER is already loaded. Until the system can
     be rebooted to activate the new driver, the Installation Verification
     Procedure (IVP) is not testing the newly installed driver.When your
     installation is complete, to properly test the new driver, please
     add the invocation of UJSTARTUP.COM procedure in your system command
     file : SYS$STARTUP_V5.COM and then, reboot the system and run the
     Installation Verification Procedure with the following command:
     @SYS$TEST:HAMS$IVP

* Do you want to run the IVP after the installation [YES]?

     The HAMS$STARTUP.COM command file which starts the HAMS software is
     located on the SYS$STARTUP directory. This command file is generate
     by the HAMS$CONFIG.COM pocedure. After the installation, please execute
     the HAMS$CONFIG.COM procedure to ensure a correct configuration of
     your system.

     If you want to start HAMS software at system startup, you have to
     add the invocation of this file in your SYS$STARTUP:SYSTARTUP_V5.COM
     command file.

     All inquiries have been requested. If no errors occur, the
     installation will be completed in about 8 minutes.

%VMSINSTAL-I-RESTORE, Restoring product saveset B ...
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

  Beginning the HAMS Installation Verification Procedure.

  The MIRA AS Watchdog Driver has been tested successfully.

  The HAMS Operator Interface Software has been tested successfully.

  The HAMS Application Interface Software has been tested successfully.

  The HAMS V1.0 standard Installation Verification Procedure has been run
  successfully

  The HAMS V1.0 product has been installed successfully

 Installation of HAMS V1.0 completed at 14:35

 VMSINSTAL procedure done at 14:35

$
```

Appendix B

Example of HAMS VMS Software Configuration Procedure

The following example illustrates the screen display during the configuration procedure, using the command:

```
$@SYS$MANAGER:HAMS$CONFIG.COM

          *** HAMS VMS Software Configuration Procedure ***

* Timer value to start MIRA ([0.3 - 27] seconds) [2]: 0.3
* Delay value to start MIRA ([0.6
 - 59] seconds) [5]: 45
* Should clock synchronisation be periodically rescheduled [NO]: YES
* Clock synchronisation resshedule interval: :1
* Initialisation file name [SYS$MANAGER:HAMS$INITIALIZATION.COM]:
* Is a failover command file required [NO]:

Here are the responses you have just entered :

 - Timer value for triggering operations  : 0.3
 - Delay value to start HAMS software   : 45
 - Initialisation file name    : SYS$MANAGER:HAMS$INITIALIZATION.COM
 - No failover command file specified
 - Is clock synchronisation automatically rescheduled : YES
 - Clock synchronisation reschedule interval  : :01

* Do you validate all these responses [YES]:

  The  HAMS$STARTUP.COM  command  file which starts the HAMS software is
  located in the SYS$STARTUP directory.
  If you want to start the HAMS software at system start up, you have to
  add  the invocation of this  file in your SYS$STARTUP:SYSTARTUP_V5.COM
  command file.

  If parameter "DEFLOG" is added to the invocation of the command  file,
  only the global symbos and logicals needed by HAMS software will be
  defined.
```

```
* The MIRA software configuration is completed.
```

Appendix C

Files and Logical Names Installed on Your System

The MIRA HAMS installation procedure installs a number of files on your system and defines some logical names. Section C.1 lists the files installed. Section C.2 lists the logical names that are added to the system logical name table.

C.1 File Names

The following list contains the names of all files created on your system when MIRA HAMS is installed.

Directory: SYS$LOADABLE_IMAGES

UJDRIVER.EXE	MIRA AS Watchdog Driver
UJDRIVER.ULD	MIRA AS Watchdog Firmware

Directory: SYS$SYSTEM	
HAMS$EMS_MAIN.EXE	Error Management System module
HAMS$AMS_MAIN.EXE	Application Management System module
HAMS$OI_MAIN.EXE	Operator Interface module
HAMS$DEMO_MAIN.EXE	Application Interface Test program for IVP
HAMS$UJTEST_MAIN.EXE	MIRA AS Watchdog Driver Test program
HAMS$TEST_MAIN.EXE	HAMS Test program

Directory: SYS$MESSAGE	
HAMS$MSG.EXE	HAMS Message File

Directory: SYS$MANAGER	
HAMS$CONFIG.COM	HAMS configuration procedure
HAMS$INITIALIZATION.COM	HAMS Database initialisation procedure
HAMS$STOP.COM	HAMS shutdown procedure
HAMS$NET_INI.COM	HAMS net initialization for test

Directory: SYS$HELP	
HAMS$UJTEST_HELP.HLB	Help Message File for the Driver Tester
HAMS$DEMO_HELP.HLB	Help Message File for the Application Interface Test program
HAMS$OI_HELP.HLB	Help Message File for the Operator Interface
HAMS010.RELEASE_NOTES	HAMS Release Notes

Directory: SYS$LIBRARY	
HAMS$AMSAI_SHR.EXE	Code of HAMS Application Interface routines to be linked with user applications
HAMS$MSGPNTR.OBJ	HAMS Application Interface status codes to be linked with user applications
HAMS$ADALIB$NEW.DIR	HAMS-ADA package, only if this package needed
HAMS$ADALIB$OLD.DIR	HAMS-ADA package, only if this package needed and if the packagehad been already loaded

Directory: SYS$TEST	
HAMS$IVP.COM	HAMS Installation Verification Procedure
HAMS$OI_TEST.COM	Operator Interface test command file
HAMS$OI_RESULT.DAT	Operator Interface test expected results
HAMS$AI_TEST.COM	Application Interface test command file
HAMS$AI_RESULT.DAT	Application Interface test expected results
HAMS$UJ_TEST.COM	HAMS Driver test command file
HAMS$UJ_RESULT.DAT	HAMS Driver test expected results
HAMS$TEST_MAIN.COM	HAMS software test command file
HAMS$TEST_RESULT.DAT	HAMS software test expected results
HAMS$ADA_IVP.COM	HAMS ADA Installation Verification procedure, only if HAMS-ADA needed

C.2 Logical Names

The following logical names are entered into the system logical name table after MIRA HAMS is installed by running the HAMS$STARTUP.COM procedure generated by HAMS$CONFIG.COM. These names are stored in the product's startup file. They are automatically entered into the system logical name table whenever the system reboots or whenever the software is invoked.

Logical names	Definitions
HAMS$LOGICAL_TABLE	Identifies the table where to store the HAMS start parameters
HAMS$DEVICE	Identifies the MIRA AS Watchdog device unit
HAMS$EMS_DEBUG	Identifies EMS component debug log
HAMS$EMS_EVENTS	Identifies EMS component events log
HAMS$AMS_DEBUG	Identifies AMS component debug log
HAMS$AMS_EVENTS	Identifies AMS component events log

C.3 Global Symbols

The following global symbols are entered into the system symbol table when MIRA HAMS is installed. These names are stored in the product's startup file. They are automatically entered into the system symbol table whenever the system reboots or whenever the software is invoked.

Global Symbols	Definitions
HAMS	Activates the HAMS Operator Interface image
HAMSDEMO	Activates the Application Interface demo program image
HAMSTEST	Activates the HAMS Test program image
UJTEST	Activates the MIRA AS Watchdog driver image

. . .

Appendix D

Stopping HAMS for Upgrades

If you need to upgrade your system you must use the following procedure to perform an orderly shutdown:

- Enter the command:

```
HAMS>SET SYSTEM/ERROR ACTION=STOP
```

- Enter the command:

```
HAMS>FAILOVER/SYSTEM
```

- Enter the command at the $ prompt:

```
@SYS$SYSTEM:SHUTDOWN
```

- Power off the system.

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