MIRA MicroVAX Software Installation Guide

Order Number: AA-KK07D-TN

Software Version: MIRA V2.2

digital equipment france, annecy

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1 Introduction to MicroVAX/VMS MIRA Software Installation

This guide tells you how to install the MicroVAX/VMS MIRA software on your MIRA system. Before you install this software, the VMS operating system (V5.3 or later) must be installed.

The MIRA installation takes about 15 minutes. Begin by following the instructions in this guide. After you have followed the preliminary instructions in this guide, you must follow instructions from your terminal to complete the installation.

The MicroVAX/VMS MIRA software is distributed on a single TK50 cartridge or one tape. This cartridge or tape contains all the required components to properly install the MIRA software.

The MIRA software should be installed on **both** MIRA systems. It requires 3800 blocks of disk space during installation, but when the installation is complete it only occupies 800 blocks.

For more information about the MIRA software, see the following manuals:

— MIRA MicroVAX User's guide (Order Number: AA-KK07D-TN)

— MIRA Release Notes (in the file SYS$HELP:MRA022.RELEASE_NOTES)

The steps to install the VMS software are listed below:

1. Boot the system.
2. Run the VMSINSTAL command file.
3. Log out after the installation has completed.

Examples of a complete installation and verification procedure, and the list of the files provided by the installation procedure are given in the appendices to this manual.

Convention: The symbol ⏎ means that you must press the RETURN key.

2 Installing the MIRA Software

2.1 Invoking the Installation Command File

Log into the SYSTEM account and execute the command file VMSINSTAL in the directory SYS$UPDATE with the following command:

```
@SYS$UPDATE:VMSINSTAL
```

The system asks you if your system disk is backed up, and asks for the device where the cartridge or tape will be mounted.

The system reminds you to put the cartridge or tape in the drive and you confirm that the medium is in place by entering "Y".

The system asks you for the product name. Then you type MRA.

With VMS V5.3, after all the MIRA software has been copied to the disk, the system asks you whether a licence has been registered or not. You should confirm this by entering "Y". If you enter "N", then the installation procedure is aborted and the appropriate licence should be registered before re-installing. Refer to Chapter 6 for details of the licence registration.

The system asks you whether MIRA-Ada interface is required or not. If you answer "Y" to this question (which is the default), VAX Ada must be already installed on your processor, otherwise the MIRA installation will fail.

The system asks you whether you want to purge the files replaced by this installation. You should confirm by entering RET, otherwise type "N".

2.2 Verifying the Installation

2.2.1 * Do you want to run the IVP?

This question is asked only if the MIRA-Ada procedure interface is not needed. It is recommended that you run the Installation Verification Procedure in all cases. It is compulsory if the MIRA-Ada procedure interface is installed.

The Installation Verification Procedure checks:

1. the MIRA Driver software
2. the MIRA Operator Interface software
3. the MIRA Application Interface software
4. the MIRA-Ada Procedure Interface (if present).

Note: The Installation Verification Procedure calls two command files:

SYS$TEST:MRA$IVP.COM

SYS$TEST:MRA$ADA_IVP.COM

You can execute these files at any time as a confidence test. Only the first file should be executed if MIRA-Ada has not been installed.

If a problem occurs during the IVP, you should compare two files located in the SYS$TEST directory. One of these files contains the intended (correct) results of a given test, and the other will contain the actual results 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
MIRA Driver	MRA$DRVOUTPUT.DAT	MRA$DRVRESULT.DAT
MIRA Operator Interface	MRA$OIOUTPUT.DAT	MRA$OIRESULT.DAT
MIRA Application Interface	MRA$AIOUTPUT.DAT	MRA$AIRESULT.DAT

2.3 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.

3 System Configuration

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

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

3.1 Questions about the Hardware

3.1.1 * CSR address of the MIRA device?

The MIRA device address should be entered in octal notation. If the MIRA device address on your system is different from the standard one, enter the correct address in octal notation (enter only the octal digits, for example: 760400 RET), otherwise press RET.

3.1.2 * Interrupt vector of the MIRA device?

The MIRA device interrupt vector, in the range 300—774, should be entered in octal notation. If the interrupt vector of the MIRA device on your system is different from the standard one, enter the correct vector address (only the octal digits, e.g. 310 RET), otherwise press RET. If you enter a value, the system checks that this value is in the range from 300(8) to 774(8).

3.2 Customising the MIRA Software

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

3.2.1 * Is the Application Interface needed?

Enter "N" if you do not need the Application Interface. Otherwise press RET.

3.2.2 * Directory name for the Switch Map file?

The Switch-Map file will be placed in this directory. The default is SYS$MANAGER.

3.2.3 * Do you want to create this directory on your target system directory?

The system asks you this question if you enter a directory which does not already exist on the disk. The system will create the directory, if requested.

3.3 Questions about the Application Interface

The questions below are needed to generate the MRA$STARTUP.COM command file. The corresponding answers will be the qualifiers of the MIRA_CONTROL START command.

3.3.1 * Timer value to start MIRA?

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 300 milliseconds (0.3 second). Maximum value is 27 seconds.

3.3.2 * Delay value to start MIRA?

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 20 seconds. Minimum value is 300 milliseconds (0.3 second). Maximum value is 27 seconds.

3.3.3 * Do you want the MIRA software to start with the ALARM enabled?

The default answer corresponds to the command qualifier ''/ALARM'' for the MIRA_CONTROL START command.

3.3.4 * Do you want the MIRA software to start with the Flag file management enabled?

The default answer corresponds to the command qualifier ''/FLAGFILE'' for the MIRA_CONTROL START command.

3.3.5 * Do you want the MIRA software to start with the standard Master/Standby mode of operation enabled?

The default answer corresponds to the command qualifier ''/RELEASELINES'' for the MIRA_CONTROL START command.

3.3.6 * Maximum delay for line reconnexion attempts?

This question is asked only if you have answered "N" to the previous question. You should enter a value in VMS Delta Time format (for example, ‘‘:30:00’’ would specify ‘‘thirty minutes’’. The default answer is 20 seconds. Minimum value is 1 second. There is no maximum value.

3.3.7 * Do you want the MIRA software to start with automatic clocks synchronization?

The default answer corresponds to the command qualifier ‘‘/NOCLOCKSYNCHRONIZATION’’ for the MIRA_CONTROL START command.

3.3.8 * Should clock synchronization be periodically rescheduled?

This question is asked only if you have answered "Y" to the previous question.

3.3.9 * Clock synchronization reschedule interval?

This question too is asked only if you have answered "Y" to the previous question. You should enter a value in VMS Delta Time format. The default answer is one day (24 hours). Minimum value is 1 minute. There is no maximum value.

3.3.10 * Application Interface Control process priority?

You should enter a value in the range 0—15. The default priority is 15. In most cases, you do not need to modify this priority, in which case just press RET. If you supply a value that is different from the default value, this will have a serious impact on the behaviour of the MIRA system. You should only do this after having acquired an in-depth understanding of how the MIRA software runs. Refer to *MIRA MicroVAX User’s guide* for more information.

3.3.11 * Is the MIRA-ADA procedure interface needed?

If you answer "Y" to this question (this is the default), VAX Ada must be already installed on your processor. Otherwise, the MIRA installation will fail.

3.4 Mistakes when Answering the Questions

3.4.1 * Do you validate all your previous responses

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

3.5 Entering the Switch-Map File Content

After building the MIRA software components and if the Application Interface is needed, you are asked for the Switch-Map File content. Refer to "MIRA User's guide" for the structure of this file.

4 The Elaborate-Switch-Map Utility

This tool is provided to create or alter the Switch-Map file.

4.1 Components of the Elaborate-Switch-Map Utility

It consists of:

1. Two programs which reside on the directory SYS$SYSTEM
   - MRA$SWITCHMAP_CREATE
     This program creates a new Switch-Map file.
   - MRA$SWITCHMAP_MODIFY
     This program modifies an existing Switch-Map file.
2. One command file which resides on the directory SYS$MANAGER
   - MRA$SWITCHMAP.COM
     This command file asks you for the file specification of the Switch-Map to be created or modified. The default answer is the "Default Switch-Map" which is located in the directory defined during configuration (see Section 3.2.2). The system then attempts to find this file on the local computer. If the file is found, the system runs the MRA$SWITCHMAP_MODIFY program to modify the existing switch-map file; if not, the system runs the MRA$SWITCHMAP_CREATE program to create a new switch-map file.

4.2 Invoking the Elaborate-Switch-Map Utility

To invoke the Elaborate-Switch-Map Utility, you must have the SYSPRV privilege. You can invoke this utility, whether the MIRA software is running or not, with the following command:

```
$ @SYS$MANAGER:MRA$SWITCHMAP.COM [switch-map-filename]
```

If you omit the *switch-map-filename* parameter, you will be asked to supply one. If you then just press RET, then the default value will be the "Default Switch-Map" if it is defined; there is no default when the "Default Switch-Map" is not defined.

Note: You should always have the *same* Switch-Map file on *both* systems. To ensure this, you can either create it in the same way on each system, or create it on one system and copy it to the other system via DECnet (if available).

4.3 Specifying Logical Names for Management of Switch-Map File

Four logical names handle the Switch-Map File:

1 **Switch-Map Directory**
The logical name MRA$SWITCHMAP_DIR refers to the directory, containing the switch-map file(s), defined during configuration.

2 **Default Switch-Map**
The logical name MRA$DEF_SWITCHMAP refers to the Switch-Map File MRA$SWITCHMAP.DAT defined during configuration.

3 **Working Switch-Map**
The logical name MRA$SWITCHMAP refers to the Switch-Map used by the Operator Interface and the Application Interface.

This logical name is created by the Operator Interface after a MIRA_ CONTROL START command, according to the following rules:

— If START command contains a /SWITCHMAP qualifier, the "working Switch-Map" equates to that given by the /SWITCHMAP qualifier.

— If START command does not contain any /SWITCHMAP qualifier and if the "default Switch-Map" is defined, the "working Switch-Map" equates to the "default Switch-Map".

— if START command does not contain any /SWITCHMAP qualifier and if the "default Switch-Map" is not defined, the "working Switch-Map" equates to SYS$MANAGER:MRA$SWITCHMAP.DAT

If you start MIRA with an unmodified MRA$STARTUP.COM command file, the "Working Switch-Map" equates to the "Default Switch-Map".

4 **Elaborate Switch-Map**
The logical name MRA$ELAB_SWITCHMAP refers to the Switch-Map used by the "Elaborate Switch-Map" utility. It only exists while MRA$SWITCHMAP.COM is executing.

5 Installing in a Cluster Environment

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

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

It is recommended that the software installation procedure be run on each licensed MIRA MicroVAX in your cluster.

However, you may greatly speed up this process by observing the following:

1. If your MIRA system is the only MIRA system in your cluster, you can perform the installation once, on either MIRA MicroVAX. Then the specific MIRA startup procedures put into the specific [SYSMGR] directory (MRA$STARTUP.COM, MRA$MASTERSTARTUP.COM, MRA$STANDBY.COM and UTSTARTUP.COM) by the installation procedure, should be moved to the other specified [SYSMGR] directories. The systems will use the same hardware and startup parameters and the same Switch-Map file.
2. If you have more than one MIRA system on your cluster, you can perform the installation only once, on either MIRA MicroVAX of any MIRA system of the cluster. In this case, however, you should carry out the following steps. It is assumed that the pairs of MIRA systems have not the same hardware configuration and will not be started with the same MIRA_CONTROL START parameters:
   i The specific MIRA startup procedures, put into the specific [SYSMGR] directory (MRA$STARTUP.COM, MRA$MASTERSTARTUP.COM, MRA$STANDBYSTARTUP.COM and UTSTARTUP.COM) by the installation procedure, should be moved to the other specific [SYSMGR] directories and edited to reflect the hardware configuration of each pair of MIRA MicroVAX (UTSTARTUP.COM with correct MIRA logic CSR and Vector addresses) and the desired START command parameters (MRA$STARTUP.COM).
   ii The Switch-Map files should be moved to their respective specific directories in each processor of each MIRA system and then modified as required on the appropriate MIRA MicroVAX computers using the cluster-wide MRA$SWITCHMAP.COM procedure. This will ensure that the right files are found for each MIRA processor in your cluster.

Note: If your cluster is a Local Area VAXcluster with two system disks, at least one installation should be performed per disk.

6 Software Licensing

Versions 5.0 and above of the VMS operating system include the Licence Management Facility (LMF). This is a software feature which prevents customers from using software for which they have not purchased a licence.

Version 2.2 of MIRA incorporates an interface to LMF. This has the following repercussions:

- If you install MIRA V2.2 for use with VMS Version 5.0 or above, you will have to supply the appropriate key at installation time.
- If you install MIRA V2.2 for use with VMS Version 4.x, and you subsequently update VMS to Version 5.3 or above without supplying the MIRA key at VMS installation time, you will get an error when you execute the MIRA_CONTROL command—that is, you will not be able to execute commands at the MIRA> prompt.

7 Licence Registration Procedure

On VMS V5.3, you should register your MIRA licence before install it. For this purpose, you should enter the following command:

```
@SYS$UPDATE:VMSLICENSE
```

The systems asks you the characteristics of the MIRA Software to be registered. Use the PAK provided with the software to register the licence.

A Example of VMS V5.0 Installation and Verification Process

```
$@SYS$UPDATE:VMSINSTAL<CR>
 VAX/VMS Software Product Installation Procedure V5.3-0
It is 14-SEP-1990 at 16:50.
Enter a question mark (?) at any time for help.
* Are you satisfied with the backup of your system disk [YES] ? <CR>
* Where will the distribution volumes be mounted: $2$DIA3:[0,0] <CR>

Enter the products to be processed from the first distribution volume set.
* Products: MRA022<CR>
* Enter installation options you wish to use (none): <CR>
The following products will be processed:<CR>
  MRA V2.2
 Beginning installation of MRA V2.2 at 16:50

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
        Product:      MIRA-SWITCH-CONTROL
        Producer:     DEC
        Version:      2.2
        Release Date: 01-JUL-1990
* Does this product have an authorization key registered and loaded? Y<CR>

         Your MIRA driver is loaded.
  Until the system can be rebooted to activate the new driver,
  the Installation Verification Procedure (IVP) is not testing
  the newly installed driver.To properly test the new driver,
  please reboot the system and run the IVP.

  You should reboot your system when your installation is complete
  and run the Installation Verification Procedure with the following
  command : @SYS$TEST:MRA$IVP

* Is MIRA-ADA interface needed (VAX-ADA must be already installed) [YES]? N<CR>
* Do you want to purge files replaced by this installation [YES]? <CR>
* Do you want to run the IVP after the installation [YES]? <CR>


  We have now to build the MIRA software components. This can take 10 to 20
  minutes, depending on your quotas. Please, wait ...


  The MRA$STOP.COM command file which stops the MIRA software is
  located on the SYS$MANAGER directory.
  If you want to stop the MIRA software at system shut-down, you have to add
  the invocation of this file in your SYS$MANAGER:SYSHUTDWN.COM command file.

  The MRA$STARTUP.COM command file which starts the MIRA software is
  generated by the MRA$CONFIG.COM procedure.
  If you want to start the MIRA software at system start-up,you have to add
  the invocation of this file in your SYS$MANAGER:SYSTARTUP_V5.COM

  Please ensure that you logout after the installation is complete
  in order that the products logicals are correctly defined.

  After this installation, please execute the MRA$CONFIG.COM procedure
  to ensure a correct configuration of your system. This procedure is
  located in the SYS$MANAGER directory.

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

* Beginning the MIRA Installation Verification Procedure.


  The MIRA V2.2 Driver Software has been tested successfully.


  The MIRA V2.2 Operator Interface Software has been tested successfully.
```

Example of VMS V5.0 Installation and Verification Process

```
  The MIRA V2.2 Application Interface Software has been tested successfully.


  The MIRA V2.2 standard Installation Verification Procedure has been tested
  successfully

* The MIRA V2.2 installation has been installed successfully

 Installation of MRA V2.2 completed at 16:55

Enter the products to be processed from the next distribution volume set.
* Products: EXIT<CR>
 VMSINSTAL procedure done at 16:56<CR>
```

B List of the files provided by MIRA installation

The following files are provided by the Installation Procedure:

Directory: SYS$SYSTEM

UTDRIVER.EXE	MIRA Driver
UTTESTER.EXE	Driver Tester for Installation Verification Procedure
MRA$OPERATOR.EXE	Operator Interface program
MRA$CONTROL.EXE	Application Interface program
MRA$TRIGGER.EXE	Trigger program
MRA$DEMO.EXE	Application Interface Tester for Installation Verification Procedure
MRA$SWITCHMAP_ CREATE .EXE	Program to create a new Switch-Map
MRA$SWITCHMAP_ MODIFY .EXE	Program to modify an existing Switch-Map
MRA$SAMPADA.EXE	Application Interface Tester written in Ada for Installation Verification Procedure (if MIRA-Ada procedure interface required)

Directory: SYS$MANAGER

UTSTARTUP.COM	Loads the driver
MRA$STARTUP.COM	Starts the MIRA Application Interface
MRA$MASTERSTARTUP.COM	Invoked each time the system starts as MASTER
MRA$STANDBYSTARTUP.COM	Invoked each time the system starts as STANDBY
MRA$STOP.COM	Stops the MIRA Application Interface
MRA$SWITCHMAP.COM	"Elaborate Switch-Map" command file

Directory: SYS$HELP

MRATESTHELP.HLB	Help Messages File for the Driver Tester
MRADEMOHELP.HLB	Help Messages File for the Application Interface Tester
MRAHELP.HLB	Help Messages File for the Operator Interface

Directory: MRA$SWITCHMAP_DIR

MRA$SWITCHMAP.DAT	Switch-Map File

List of the files provided by MIRA installation

Directory: SYS$MESSAGE	
MRAMSG.EXE	MIRA Software Messages file

Directory: SYS$LIBRARY	
UTDEF.BAS	Symbols and statuses used by the MIRA Driver (for BASIC programs)
UTDEF.FOR	Symbols and statuses used by the MIRA Driver. (for FORTRAN programs)
UTDEF.H	Symbols and statuses used by the MIRA Driver (for VAX-C programs)
UTDEF.MAR	Symbols and statuses used by the MIRA Driver. (for MACRO programs)
UTDEF.PAS	Symbols and statuses used by the MIRA Driver. (for Pascal programs)
UTDEF.PLI	Symbols and statuses used by the MIRA Driver (for PL1 programs)
UTDEF.R32	Symbols and statuses used by the MIRA Driver (for BLISS programs)
UT_SSDEF.OBJ	MIRA software module to be linked with user applications. It contains all the statuses returned by the MIRA Driver. (refer to MIRA User's guide Manual)
MRA$USER.OBJ	MIRA software module to be linked with user applications. It contains the code of the functions MRACON, MRAENA, MRADIS and MRASWA.
MRAMSGPNTR.OBJ	MIRA software module to be linked with user applications. It contains all the statuses returned by the MIRA Application Interface. (refer to *MIRA User's Guide*)
[MIRA_ADALIB...]	Ada objects and ACU files necessary to compile an user application program written in Ada with the two packages MIRA and MIRA_STATUS (if MIRA-Ada required)
UTDEF.ADA	Symbols and statuses used by the MIRA Driver. for Ada programs (if MIRA-Ada required)

Directory: SYS$TEST	
MRA$IVP.COM	MIRA Installation Verification Procedure
MRA$DRVTEST.COM	Driver Tester command file
MRA$DRVRESULT.DAT	Driver Tester expected results
MRA$OITEST.COM	Operator Interface test command file
MRA$OIRESULT.DAT	Operator Interface test expected results
MRA$AITEST.COM	Application Interface Tester command file
MRA$AIRESULT.DAT	Application Interface Tester expected results
MRA$ADA_IVP.COM	MIRA-Ada Installation Verification Procedure if MIRA-Ada required
MRA$ADA_AIRESULT.DAT	MIRA-Ada Interface Tester expected results if MIRA-Ada required