PDP–11 Symbolic Debugger

Installation Guide

Order Number: AA–FA62C–TK

November 1990

Revision/Update Information:	This is a revised manual.
Operating System and Version:	VMS Version 5.0-1 through 5.4 and VAX–11 RSX Version 2.4 or higher RSX–11M Version 4.6 or higher RSX–11M–PLUS Version 4.3 or higher Micro/RSX Version 4.3 or higher RSTS/E Version 9.7 or higher
Software Version:	PDP–11 Symbolic Debugger Version 2.2

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Preface

Manual Objectives

This manual explains how to install the PDP–11 Symbolic Debugger on all the supported operating systems. It also explains how certain features of the Debugger can be customized.

Operating Systems and Versions

The PDP–11 Symbolic Debugger Version 2.2 runs on the following operating systems and versions:

VMS Version 5.0-1 through 5.4 and VAX–11 RSX Version 2.4 or higher
RSX–11M Version 4.6 or higher
RSX–11M–PLUS Version 4.3 or higher
Micro/RSX Version 4.3 or higher
RSTS/E Version 9.7 or higher

Note

Please consult the System Support Addendum (SSA) contained in this kit for additional information concerning VMS versions.

Intended Audience

This manual is intended for system managers and other users who have extensive knowledge of the host operating system.

Associated Documents

The following list of the PDP–11 Symbolic Debugger documentation set briefly describes the contents of each manual.

- *PDP–11 Symbolic Debugger User's Guide*. This manual explains how to use the Debugger on all supported operating systems. A reference appendix gives the format of each Debugger command and lists the qualifiers and parameters you use with them.
- *PDP–11 Symbolic Debugger Release Notes*. The online Release Notes details new features of PDP–11 Symbolic Debugger V2.2 and any restrictions.

Conventions

The following conventions are observed in this manual:

Convention	Meaning
UPPERCASE	Uppercase words and letters in examples indicate that you should type the word or letter exactly as shown.
lowercase	Lowercase words and letters in examples indicate that you are to substitute a word or value of your choice.
[ ]	Brackets in examples indicate optional elements.
n	A lowercase n indicates that you must substitute a value.
RSX–11	RSX–11 is used as a generic term for the RSX–11M and RSX–11M–PLUS operating systems.
Ctrl/x	The symbol Ctrl/x indicates that you hold down the control key while simultaneously pressing the specified letter key. For example, Ctrl/z indicates that you hold down the Ctrl key and press the z key.
RET	This symbol indicates that you press the Return key.
Debugger	The PDP–11 Symbolic Debugger is referred to as the Debugger in this manual

1

Introduction to Installing the PDP–11 Symbolic Debugger

The PDP–11 Symbolic Debugger is a powerful tool you can use to help you find errors in your programs. Before you can use the Debugger you must install it on your system. This chapter provides information you need in order to perform the installation.

1.1 Using an Automatic Installation Procedure

On each of the supported operating systems, the Debugger is installed with an automatic installation procedure. Each of the procedures prompts you for limited input during the installation process. Once you have given the procedure the input it needs, it completes the installation automatically.

RSX–11M, RSX–11M–PLUS, and RSTS/E system users can also use the automatic installation procedure to apply updates to the Debugger. You apply the update by using update distribution medium to reinstall the Debugger. Updates to the Debugger are cumulative; every update kit you receive contains all the updates made to the product since the last version of the Debugger was released.

The installation procedures are:

- Auto-Install for RSX–11M, RSX–11M–PLUS, and RSTS/E operating systems
- OPTION for a Micro/RSX operating system
- VMSINSTAL for a VMS operating system

The remainder of this chapter describes the basic functions of Auto-Install and how to install it on your system. Micro/RSX or VMS users can skip to Chapter 3 or Chapter 5 respectively.

1.2 Overview of Auto-Install

If you have a RSX–11 operating system, you can refer to Section 1.2.1 for more details on installing Auto-Install.

If you have a RSTS/E operating system, make sure that the Auto-Install work directory has been created before you install Auto-Install. Refer to Section 1.2.2 for more details.

Auto-Install functions as follows:

- Checks the installation files automatically for a new or updated version of Auto-Install. If a new version or update is found, Auto-Install asks if you want to install it . If you answer YES, Auto-Install displays the commands needed to perform the installation or update. If you answer NO, Auto-Install issues a warning that this could cause the installation to fail and reprompts you to perform the installation or update.
- Combines the installation and update procedures for all products. Auto-Install checks the update area and applies any updates to the product's installation files prior to performing the installation.
- Creates the following log files of the installation in the user's login directory:

  AUTOIN.LOG, which contains the main installation procedure's dialogue.

  DBGDBG.LOG, which contains the PDP–11 Symbolic Debugger portion of the dialogue.

- Creates temporary work areas on the user's device and deletes them before the installation completes. If any of these remain after an installation, you may delete them. The temporary work areas are:

  On RSX–11:

  Auto-Install sets your default device and directory to your login device and directory. It then creates the work area in directory [367,100] on your login device.

  On RSTS/E:

  Auto-Install creates the work area in directory [0,81] on your system device. RSTS/E automatically assigns the logical names AUTWRK$ to system directory [0,81] and AUTOIN$ to system directory [0,80] (which you created earlier). These directories

respectively contain the Auto-Install work and the Auto-Install utility areas.

- Creates temporary files in the user's login directory and deletes them before the installation completes. If any remain after an installation, you may delete them. The names of the temporary files are:

CUSTOM.DAT	INSTAL.TMP	DBGDBG.SAV
UPDATE.DAT	AUTUPD.DAT	DBGDBG.TMP
ISTAT.DAT	DBGDBG.CFG	

- Allows Auto-Install installation files to remain on the system after installing in system directory [367,367] on RSX–11 and in system directory [0,80] on RSTS/E. The RSTS/E directory has the logical name AUTOIN$.

  The Auto-Install files are needed to reinstall PDP–11 Symbolic Debugger and other products and should not be deleted. If you accidentally delete them, you can reinstall Auto-Install from the distribution kit.

  On RSX–11, the names and functions of the installation files are:

AUTOIN.CMD	Controls installations
CUSTOM.CMD	Controls customization processes
DEFUPD.TSK	Updates the status of the configuration data file
INSTAL.DAT	Lists products installed by Auto-Install
PRODIN.CMD	Installs individual layered products
PRDTBL.DAT	Lists products Auto-Install may support
UPDATE.CMD	Controls the updating of the configuration data file
UPDATE.TSK	Updates the configuration data file

  On RSTS/E, the names and functions of the installation files are:

AUTOIN.COM	Controls installations
CUSTOM.COM	Controls customization processes
DEFUPD.TSK	Updates the status of the configuration data file
INSTAL.DAT	Lists products installed by Auto-Install
PRODIN.COM	Installs individual layered products
PRDTBL.DAT	Lists products Auto-Install may support
UPDATE.COM	Controls the updating of the configuration data file
UPDATE.TSK	Updates the configuration data file

- Handles error messages as follows:
  - Ignores WARNING messages.
  - Aborts the installation of a product if FATAL messages are received during the installation of the product.
  - Aborts itself if FATAL messages are received during Auto-Install's installation dialogue.
  - Aborts the installation of a product if ERROR messages are received during the installation of the product.
- Uses a configuration data file, which contains the parameters and values used to determine which features of PDP–11 Symbolic Debugger are supported by default.
- Provides a procedure that assists you in customizing your configuration data file to indicate which PDP–11 Symbolic Debugger features your compiler uses by default.
- Attempts to restore the system to its prior state if an installation fails.

1.2.1 Installing Auto-Install on RSX–11M and RSX–11M–PLUS Systems

Since PDP–11 Symbolic Debugger is installed by using the Auto-Install software, ensure that Auto-Install has been installed on your system before you attempt to install PDP–11 Symbolic Debugger.

To install Auto-Install, invoke the Backup and Restore Utility (BRU). You can do so by using one of the following commands, according to the type of distribution medium in your kit:

DCL:

For Disks:

```
$  BACKUP/DIR/NOI/NEW/IMAGE:RESTORE/SAV:AUT101.A indev: sysdev:
```

For Tapes:

```
$  BACKUP/REW/DIR/NOI/NEW/DENS:dens/SAV:AUT101.A indev: sysdev:
```

MCR:

For Disks:

```
> BRU/UFD/NOI/NEW/IMAGE:RESTORE/BAC:AUT101.A indev: sysdev:
```

For Tapes:

```
> BRU/REW/UFD/NOI/NEW/DENS:dens/BAC:AUT101.A indev: sysdev:
```

Replace *indev:* with the name of the device on which you loaded your distribution medium. Replace *sysdev:* with the name of your system device. Replace *dens* with the density value indicated on your distribution medium. See the *RSX–11M/M–PLUS Utilities Manual* for more information on the Backup and Restore Utility.

1.2.2 Installing Auto-Install on a RSTS/E System

Since PDP–11 Symbolic Debugger is installed by using the Auto-Install software, ensure that Auto-Install has been installed on your system before you attempt to install PDP–11 Symbolic Debugger.

Before you can install Auto-Install, make sure that a work directory has been created. If it does not exist, enter the following command before beginning the Auto-Install installation:

```
$  CREATE/ACCOUNT/NOUSER/NOLOG/CLUSTERSIZE=16 AUTOIN$:
```

The PDPDBG$: reserved directory contains many of the PDP–11 Symbolic Debugger files after installation.

To install Auto-Install, enter the following command:

```
$  RESTORE/REPLACE/ACCOUNT/END=NODISMOUNT indev:[1,2]AUT101.A AUTOIN$:*.*
```

Replace *indev:* with the name of the drive on which you loaded your distribution medium.

1.3 The Default Debugger Configuration

For all operating systems, the Debugger is configured to make available the features most Debugger users need. You can change these defaults when you install the Debugger on an RSX–11M, RSX–11M–PLUS or a RSTS/E system. You can also change certain defaults of the automatic installation procedure. On other operating systems, you must use the Debugger and the automatic installation procedure as they are supplied.

1.4 Release Notes and Update Notes

Release notes and update notes give information about the changes made to the Debugger since the last release or update of the product. They contain information on Debugger enhancements, bugs that have been fixed, and methods for configuring your task to get the best performance possible from the Debugger. These notes are stored on line in one of the following locations:

```
SYS$HELP:PDPDEBUG022.RELEASE_NOTES (VMS)
LB:[1,2]DBGREL.DOC (RSX-11M, RSX-11M-PLUS and Micro/RSX)

SY:[1,2]DBGREL.DOC (RSTS/E)
```

To avoid errors during the procedure, please read the release notes or the update notes before installing the Debugger on your operating system. (Information on how to access these notes before invoking the installation procedure is provided for each supported operating system.)

2

Installing PDP–11 Symbolic Debugger on an RSX–11 Operating System

This chapter explains how to install PDP–11 Symbolic Debugger on the RSX–11 Operating System. Please note that in this chapter the term RSX–11 refers to the RSX–11M and RSX–11M–PLUS operating systems.

2.1 Preparing for the Installation

To prepare for the installation, perform the following initial steps:

1. Read the release notes, which describe special features and known problems for this version of PDP–11 Symbolic Debugger. For information on how to access the release notes, see Section 2.1.1.
2. Ensure that the RSX–11M or RSX–11M–PLUS operating system is installed and functioning properly.
3. Ensure that the system meets the minimum software and hardware requirements for PDP–11 Symbolic Debugger. See the Software Product Description (SPD) in your distribution kit for a list of these requirements.

A PDP–11 Symbolic Debugger installation requires between 10 and 15 minutes to complete.

The following sections describe how to access the release notes and how to prepare the operating system for the installation of PDP–11 Symbolic Debugger.

2.1.1 Accessing the Release Notes

The PDP–11 Symbolic Debugger Release Notes describe special features and known problems for this version of PDP–11 Symbolic Debugger. You should copy the release notes from the distribution medium and read them online or print them.

DCL:

For Disks:

```
$  BACKUP/NOI/DIR/NEW/IMAGE:RESTORE/SAV:DBGREL.BCK indev: outdev:
```

For Tapes:

```
$  BACKUP/DENS:dens/SAV:DBGREL.BCK/REW/NOI/DIR/NEW indev: outdev:
```

MCR:

For Disks:

```
> BRU/NOI/UFD/NEW/IMAGE:RESTORE/BAC:DBGREL.BCK indev: outdev:
```

For Tapes:

```
> BRU/DENS:dens/BAC:DBGREL.BCK/REW/NOI/UFD/NEW indev: outdev:
```

Replace *indev:* with the device on which your distribution medium is loaded. Replace *outdev:* with the destination device. Replace *dens* with the density value indicated on your distribution medium. See the *RSX–11M/M–PLUS Utilities Manual* for more information on the Backup and Restore Utility (BRU). After you enter this command, you can use the PRINT command to print the release notes:

DCL:

```
$  PRINT outdev:[367,100]DBGREL.DOC
```

MCR:

```
> PRI = outdev:[367,100]DBGREL.DOC
```

During the installation, Auto-Install copies the release notes file from the distribution medium to directory LB:[1,2] on your system disk and names it DBGREL.DOC.

2.1.2 Preparing the Operating System

To prepare the operating system, perform the following steps:

1. Log in to a privileged account. The installation procedure generates a log file, which will remain in your default login directory after you complete the installation. Therefore, it is not necessary to use a hard-copy terminal to produce a record of your installation session.
2. Verify that no one else on your system is using Auto-Install to perform an installation.
3. If Auto-Install is not already installed on your system, verify that you have 800 free blocks of contiguous storage space available for Auto-Install on the system device (specified by *sysdev* in the installation procedure.) See Section 1.2.1 for instructions on how to install Auto-Install.

4. Verify that no one else on your system is using a previously installed version of PDP–11 Symbolic Debugger.
5. Verify that you have 400 free blocks of contiguous system storage for the Debugger background task. After the installation, a total of 1700 blocks will remain in use.
6. Place your distribution medium in the drive.

   If your distribution medium is a disk, insert the disk in the drive, and set the switch to the RUN position. Make certain that the READY light is on.

   If your distribution medium is tape, load the tape according to the instructions for your drive. Set the ONLINE/OFFLINE indicator to ONLINE, and make certain that the READY light is on.

   If your distribution medium is a TK50 tape cartridge, insert the tape into the drive according to the instructions for the drive, and close the cartridge-release handle on the drive. Press the LOAD button, and make certain the LOAD light comes on. For further information on loading devices, see the manual accompanying your hardware.
7. Allocate and mount your distribution device. Tapes must be mounted with the /FOREIGN switch, as follows:

   DCL:

   ```
   $  ALLOCATE indev:
   $  MOUNT/FOREIGN indev:
   ```

   MCR:

   ```
   > ALLOCATE indev:
   > MOUNT/FOREIGN indev:
   ```

   Replace *indev:* with the device on which your distribution medium is loaded. For more information about allocating and mounting devices, see the *RSX–11M/M–PLUS Command Manual* and the *RSX–11M/M–PLUS MCR Operations Manual*.

2.2 Installation and Verification

The next three sections describe how to install PDP–11 Symbolic Debugger using Auto-Install, step you through the installation questions, and explains the Installation Verification Procedure (IVP).

2.2.1 Invoking Auto-Install

You can invoke Auto-Install with any one of the following commands:

1. @sysdev:[367,367]AUTOIN.CMD
2. @sysdev:[367,367]AUTOIN.CMD DBG
3. @sysdev:[367,367]AUTOIN.CMD indev:DBG

Replace *sysdev:* with the name of your system device. Replace *indev:* with the name of the device on which you loaded your distribution medium.

If you use command 1, the installation dialogue begins with question 1 in the following section.

If you use command 2, the installation dialogue begins with question 2.

If you use command 3, the installation dialogue begins with question 2 and skips to question 4.

The questions are listed and described in Section 2.2.2.

2.2.2 Answering Installation Questions

The online installation procedure asks questions about how you want to install PDP–11 Symbolic Debugger. This section describes these questions and explains their answers. The explanations do not appear in the installation procedure.

The default answer appears in angle brackets (< >) at the end of the question text in the installation procedure. You can accept the default answer by typing it or by pressing Return. Press Ctrl/z to exit from Auto-Install at any point in the dialogue.

Depending on how you invoked Auto-Install, you will enter the dialogue at question 1 or question 2.

1. `Which product(s) do you want to install?`

   In response to this question, type the task name for PDP–11 Symbolic Debugger:

   ```
   DBG
   ```

2. `Where are the update files located <DU0:>?`

   Press Return to continue the procedure. At this point, you may receive one warning message, which you can ignore. The text of the message is as follows:

   ```
   WARNING --  no updates for configuration data file; procedure continuing
   ```

3. `Which device are the distribution files for DBG (DBG) located on (include colon)?`

   Specify the drive on which you loaded the distribution disk or tape.

4. `Do you want to customize DBG (DBG) (Y/N) <N>?`

   To answer NO, type N or press Return. To answer YES, type Y.

   If you answer NO, the procedure asks no further questions and installs PDP–11 Symbolic Debugger with the customization options corresponding to the default answers to the customization questions.

   If you choose to customize, you are asked further questions. You can either press Return to accept the default answer; press Ctrl/z once to exit from customization, retain any changes made so far, and continue the procedure; or type a new value. To exit from Auto-Install, press Ctrl/z a second time.

5. `Release notes directory ([x,y]) <[1,2]>?`

   The release notes are placed in [1,2], the system library, by default. You may place them in any directory you wish.

6. `Target device <LB:>?`

   This is the device on which the Debugger files are installed. The default is LB:.

7. `Task directory <[3,54]>?`

   PDPDBG.TSK is placed in LB:[3,54] by default. You may put the Debugger task in any directory you wish. However, the instructions for starting the Debugger during a reboot assume the Debugger is installed in LB:[3,54], (LB:[1,54] for RSX–11M).

8. `Floating-point processor [YES | NO] <YES>?`

   If the target hardware of this installation has a floating-point processor, then use YES for the floating-point processor. If it does not or if you are unsure, answer NO.

9. `Where do you want to store the installation files <SY0:>?`

   Auto-Install will leave the installation files on the device you specify in [247,247]. These files may be used at at later time to apply updates to the Debugger or to re-install it.

10. `Allow future customization of this file <YES>?`

Answering NO to this question will prevent future installations from customizing the installation. Answer NO only if you do not want to change the installation at any future point. If you answer NO and wish to change the installation, you must re-install the Debugger from the distribution media.

11. Print release notes <NO>?

    Answering YES to this question will cause the release notes to be printed on the system line printer during the installation.

12. Print log file <NO>?

    Answering YES to this question will cause the installation log file to be printed at the end of the installation.

13. Do you want to customize DBG (DBG) again (Y/N) <N>?

    Answer YES if you wish to change any of the above answers.

At this point, Auto-Install installs PDP–11 Symbolic Debugger. Throughout the installation process, Auto-Install displays several informational messages. The following messages, or similar messages, are displayed on your terminal:

```
@LB:[367,367]AUTOIN MM0:DBG
RSX-11M/M-PLUS Auto-Install Procedure V1.1
          10-Jul-90 12:39:17
Type "?" for help; CTRL/Z to exit Auto-Install; or valid input.
Where are the update files located <DU0:>?
BRU - Starting Tape 1 on MM0:
BRU - End of Tape 1 on MM0:
BRU - Completed
Products being installed:
    Device      Product Task name
    ------      ------- ---------
    MM0:        DBG     (DBG)
Determining system configuration.
BRU - Starting Tape 1 on MM0:
BRU - End of Tape 1 on MM0:
BRU - Completed
WARNING -- no updates found for configuration data file; procedure continuing.
Do you want to customize DBG (DBG) (Y/N) <N>?
Installation of DBG (DBG) beginning at 10-JUL-90 12:40:44
Reading DBGDBG.CFG.
Transferring kit files to work area.
```

```
BRU - Starting Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Completed

BRU - Starting Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Completed

Updating kit files.

WARNING -- update file DBG202.DAT not found at DU0:[247,200].
           Kit files not updated; procedure continuing.

Building product DBG (DBG).

%DBGINS-I-CONFIG, Determining PDP-11 Symbolic Debugger Configuration

%DBGINS-I-KERNEL, Extracting kernel object file

%DBGINS-I-MOVEFILES, Files will now be moved to their target locations

%DBGINS-I-COPIED, File DBGREL.DOC copied to LB:[1,2]
%DBGINS-I-COPIED, File PDPDBG.OLB copied to LB:[1,1]
%DBGINS-I-COPIED, File PDPDBG.OBJ copied to LB:[1,1]
%DBGINS-I-COPIED, File PDPDBG.ODL copied to LB:[1,1]
%DBGINS-I-COPIED, File PDPDBG.TSK copied to LB:[3,54]
%DBGINS-I-COPIED, File PDPDBG.HLP copied to LB:[1,2]
%DBGINS-I-COPIED, File DBGRFA.HLP copied to LB:[1,2]
%DBGINS-I-COPIED, File USER.CMD copied to LB:[1,2]
%DBGINS-I-COPIED, File USER.ODL copied to LB:[1,2]
Transferring files from work area.

Running IVP command procedure DBGIVP.CMD.

%DBGINS-I-START_IVP, Starting PDP-11 Symbolic Debugger Installation Verification

  When the DBG> prompt appears, type: @MACTST
  When the DBG> prompt appears again, type: CTRL/Z

       PDP-11 Symbolic Debugger    (RSX) V2.2-00

%DEBUG-I-INISTBNAM, TKB-specified STB file is "[367100]MACTST.STB"
%DEBUG-W-CURR_NOLANG, Current language is unknown
DBG>@MACTST
MACTST\START:   MOV     #MACTST\WORKSP,%R0
MACTST\CLOOP:   CLR     (%R0)+
MACTST\CLOOP+000002:    DEC     %R1
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%DEBUG-I-BRK_ENABLED, the recognition of breakpoints is enabled
%DEBUG-I-NOTRCSET, there are no tracepoints currently set
%DEBUG-I-TRC_ENABLED, the recognition of tracepoints is enabled
%DEBUG-I-MODES, modes: symbolic, octal
%DEBUG-I-STEPTYPE, step type: by line, over routine calls
```

```
%DEBUG-I-START, start at MACTST\START
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%R1:    001750
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC     %R1
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT     MACTST\CLOOP
%R1:    001747
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC     %R1
%R1:    001744
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT     MACTST\CLOOP
%R1:    001743
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP+000006
%R1:    000000
%DEBUG-I-OUTPUTLOST, output being lost, both NOLOG and NOTERM are in effect
%DEBUG-I-VERIFYICF, exiting indirect command file "MACTST"
DBG>^Z

%DBGINS-I-COMPARE, Comparing verification output against master

%DBGINS-S-IVP_PASSED, The installation verification has passed

Installation of DBG (DBG) ending at 10-JUL-90 12:43:04.

Installation of DBG (DBG) successful.

Auto-Install ended at 10-JUL-90 12:43:10
```

2.2.3 Verifying That the Installation Is Successful

The Installation Verification Procedure (IVP) checks to ensure that the installation has been successful. When the IVP is complete and the installation is successful, the following messages are displayed on your terminal:

```
%DEBUG-S-IVP_PASSED, The installation verification has passed

Installation of DBG (DBG) ending at 10-JUL-90 12:43:04.

Installation of DBG (DBG) successful.

Auto-Install ended at 10-JUL-90 12:43:10
```

If these messages are not displayed, an error has occurred in your installation. In such a case, verify that your system meets the essential conditions listed in Section 2.1.2, and retry the installation from the beginning. If it fails again, contact your Digital Customer Services representative. If necessary, please submit a Software Performance Report (SPR) on one of the forms included in your distribution kit.

2.3 Reinstalling

The PDP–11 Symbolic Debugger may be re-installed from the disk on which you stored the installation files (Section 2.2.2, question 9) or from the original distribution media.

2.4 Post-Installation Instructions

To make the PDP–11 Symbolic Debugger available for use after a reboot, add the following line to your system startup file:

```
INSTALL $PDPDBG/TASK=...DBG
```

3

Installing PDP–11 Symbolic Debugger on a Micro/RSX Operating System

3.1 Installing on a Micro/RSX System

When you install the Debugger on a Micro/RSX system, use the Micro/RSX automatic installation procedure, OPTION.CMD. As this procedure executes, it displays prompts to which you must respond to install the Debugger. This section explains how to use OPTION.CMD to install the Debugger.

3.1.1 Preparing for the Installation

Before you invoke the installation procedure, complete the following steps:

1. Log in to a privileged account.
2. Verify that you have 400 free blocks of contiguous storage on your hard disk for the Debugger background task.
3. Verify that you have sufficient disk space to install the PDP–11 Symbolic Debugger. Your system requires a total of 600 free blocks for installation.

3.1.2 Accessing the Release Notes

The PDP–11 Symbolic Debugger Release Notes describe special features and known problems for this version of PDP–11 Symbolic Debugger. You should copy the release notes from the distribution medium and read them online or print them.

DCL:

For Tapes:

```
$  MOUNT/FOREIGN indev:
$  BACKUP/SAV:DBGREL/REW/NOI/DIR/NEW indev: outdev:
```

For Disks:

```
$  MOUNT indev:PDPDBG
$  COPY indev:[1,2]DBGREL.DOC outdev:[1,2]
```

Replace *indev:* with the device on which your distribution medium is loaded. Replace *outdev:* with the destination device. Replace *dens* with the density value indicated on your distribution medium. See the *RSX–11M/M–PLUS Utilities Manual* for more information on the Backup and Restore Utility (BRU). After you enter this command, you can use the PRINT command to print the release notes:

Printing:

```
$  PRINT outdev:[1,2]DBGREL.DOC
```

During the installation, @OPTION copies the release notes file from the distribution medium to directory LB:[1,2] on your system disk and names it DBGREL.DOC.

3.1.3 Installing the Debugger

To invoke OPTION.CMD, type the following command:

```
$  @OPTION
```

In response to this command, OPTION displays its main menu.

If the Debugger is already installed on your system, you must type R to indicate that you want to remove the old version of the Debugger. The installation command procedure displays the information you need to perform this operation. Once the old version has been removed, reinvoke OPTION.CMD by typing @OPTION to install the new version of the Debugger.

When you are ready to install the Debugger, type I to indicate that you want to install software. Then, follow the instructions displayed on your terminal.

OPTION.CMD installs the Debugger and runs the Installation Verification Procedure (IVP). The IVP is a program that tests features of the Debugger and ensures that they are working properly. The IVP requires no user interaction in the installation procedure for most operating systems. However, because of restrictions in the RSX–11M operating system, users of all RSX-based systems must answer some questions. In the installation procedures for these systems, the IVP provides instructions on answering the questions.

```
%DBGINS-I-START_IVP, Starting PDP-11 Symbolic Debugger Installation Verification

  When the DBG> prompt appears, type: @M

  When the DBG> prompt appears again, type: EXIT

       PDP-11 Symbolic Debugger    (MICRO/RSX) V2.2-00

%DEBUG-I-INISTBNAM, TKB-specified STB file is "[247247]MACTST.STB"
%DEBUG-W-CURR_NOLANG, Current language is unknown

DBG>@M
```

```
MACTST\START:   MOV     #MACTST\WORKSP,%R0
MACTST\CLOOP:   CLR     (%R0)+
MACTST\CLOOP+000002:    DEC     %R1
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%DEBUG-I-BRK_ENABLED, the recognition of breakpoints is enabled
%DEBUG-I-NOTRCSET, there are no tracepoints currently set
%DEBUG-I-TRC_ENABLED, the recognition of tracepoints is enabled
%DEBUG-I-MODES, modes: symbolic, octal
%DEBUG-I-STEPTYPE, step type: by line, over routine calls
%DEBUG-I-START, start at MACTST\START
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%R1:    001750
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC     %R1
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT     MACTST\CLOOP
%R1:    001747
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC     %R1
%R1:    001744
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT     MACTST\CLOOP
%R1:    001743
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP+000006
%R1:    000000
%DEBUG-I-OUTPUTLOST, output being lost, both NOLOG and NOTERM are in effect
%DEBUG-I-VERIFYICF, exiting indirect command file "MACTST"

DBG>EXIT

PDP-11 SYMBOLIC DEBUGGER installation verification successful.
Option PDP-11 SYMBOLIC DEBUGGER V2.2 installed.
```

When you see this message, the Debugger is ready for use. For information on the commands you use to invoke the Debugger, refer to the documentation for your programming language.

If the installation procedure fails, your system issues an error message that identifies the reason for failure. For explanations of error messages issued by the IVP and suggestions for possible user actions to fix problems, consult the appropriate operating system manual.

Release notes for the PDP–11 Symbolic Debugger are automatically copied from your distribution kit to directory [1,2] and named DGBREL.DOC.

3.2 Reinstalling

The distribution media is the only means by which PDP–11 Symbolic Debugger can be reinstalled. For this reason, it is wise to keep either the distribution medium or a copy in a safe place.

4

Installing PDP–11 Symbolic Debugger on an RSTS/E Operating System

This chapter explains how to install PDP–11 Symbolic Debugger on the RSTS/E Operating System.

4.1 Preparing for the Installation

To prepare for the installation, perform the following initial steps:

1. Read the release notes, which describe special features and known problems for this version of PDP–11 Symbolic Debugger. For information on how to access the release notes, see Section 4.1.1.
2. Ensure that the RSTS/E operating system is installed and functioning properly.
3. Ensure that the system meets the minimum software and hardware requirements for PDP–11 Symbolic Debugger. See the Software Product Description (SPD) in your distribution kit for a list of these requirements.

A PDP–11 Symbolic Debugger installation requires between 5 and 10 minutes to complete.

The following sections describe how to access the release notes and how to prepare the operating system for the installation of PDP–11 Symbolic Debugger.

4.1.1 Accessing the Release Notes

The PDP–11 Symbolic Debugger Release Notes describe special features and known problems for this version of PDP–11 Symbolic Debugger. You should copy the release notes from the distribution medium and read them online or print them. To copy the release notes file from the distribution medium prior to installing PDP–11 Symbolic Debugger, mount the distribution media on the appropriate device and issue the following command:

```
$  RESTORE dev:[1,2]DBGREL.BCK/REWIND *.*/END=NODISMOUNT/NOACCOUNT
```

Replace *dev* with the device on which your distribution medium is mounted. The release notes are copied to your directory and named DBGREL.DOC. Note that if you are applying an update to the Debugger, this file will contain a copy of the update notes.

4.1.2 Preparing the Operating System

To prepare the operating system, perform the following steps:

1. Log in to a privileged account. The installation procedure generates a log file, which will remain in your default login directory after you complete the installation. Therefore, it is not necessary to use a hard-copy terminal to produce a record of your installation session.
2. Verify that no one else on your system is using Auto-Install to perform an installation.
3. If Auto-Install is not already installed on your system, verify that you have 750 free blocks of contiguous storage space available for Auto-Install on the system device (specified by *sysdev* in the installation procedure.) See Section 1.2.2 for instructions on how to install Auto-Install.
4. Verify that no one else on your system is using a previously installed version of PDP–11 Symbolic Debugger.
5. Verify that you have 400 free blocks of contiguous system storage for the Debugger background task and kernel task. After the installation, a total of 1700 blocks will remain in use.
6. Place your distribution medium in the drive.

   If your distribution medium is a disk, insert the disk in the drive, and set the switch to the RUN position. Make certain that the READY light is on.

   If your distribution medium is tape, load the tape according to the instructions for your drive. Set the ONLINE/OFFLINE indicator to ONLINE, and make certain that the READY light is on.

   If your distribution medium is a TK50 tape cartridge, insert the tape into the drive according to the instructions for the drive, and close the cartridge-release handle on the drive. Press the LOAD button, and make certain the LOAD light comes on. For further information on loading devices, see the manual accompanying your hardware.

Note

It is unnecessary to mount the distribution volume, as Auto-Install performs this function for you in the first RESTORE command that you

enter, either to print the release notes or to install Auto-Install.

4.2 Installation and Verification

The next three sections describe how to install PDP–11 Symbolic Debugger using Auto-Install, step you through the installation questions, and explains the Installation Verification Procedure (IVP).

4.2.1 Invoking Auto-Install

You can invoke Auto-Install with any one of the following commands:

1. @AUTOIN$:AUTOIN.COM
2. @AUTOIN$:AUTOIN.COM DBG
3. @AUTOIN$:AUTOIN.COM indev:DBG

Replace *indev:* with the name of the device on which you loaded your distribution medium.

If you use command 1, the installation dialogue begins with question 1 in the following section.

If you use command 2, the installation dialogue begins with question 2.

If you use command 3, the installation dialogue begins with question 2 and skips to question 4.

The questions are listed and described in Section 4.2.2.

4.2.2 Answering Installation Questions

The online installation procedure asks questions about how you want to install PDP–11 Symbolic Debugger. This section describes these questions and explains their answers. The explanations do not appear in the installation procedure.

The default answer appears in angle brackets (< >) at the end of the question text in the installation procedure. You can accept the default answer by typing it or by pressing Return. Press Ctrl/z to exit from Auto-Install at any point in the dialogue.

Depending on how you invoked Auto-Install, you will enter the dialogue at question 1 or question 2.

1. `Which product(s) do you want to install?`

In response to this question, type the task name for PDP–11 Symbolic Debugger:

```
DBG
```

2. `Where are the update files located <PATCH$:>?`

   Press Return to continue the procedure. At this point, you may receive one warning message, which you can ignore. The text of the message is as follows:

   ```
   WARNING --  no updates for configuration data file; procedure continuing
   ```

3. `Which device are the distribution files for DBG (DBG) located on (include colon)?`

   Specify the drive on which you loaded the distribution disk or tape.

4. `Do you want to customize DBG (DBG) (Y/N) <N>?`

   To answer NO, type N or press Return. To answer YES, type Y.

   If you answer NO, the procedure asks no further questions and installs PDP–11 Symbolic Debugger with the customization options corresponding to the default answers to the customization questions.

   If you choose to customize, you are asked further questions. You can either press Return to accept the default answer; press Ctrl/z once to exit from customization, retain any changes made so far, and continue the procedure; or type a new value. To exit from Auto-Install, press Ctrl/z a second time.

5. `Release notes directory ([x,y]) <[1,2]>?`

   The release notes are placed in [1,2], the system library, by default. You may place them in any directory you wish.

6. `Floating-point processor [YES | NO] <YES>?`

   If the target hardware of this installation has a floating-point processor, then answer YES to this question. If it does not or if you are unsure, answer NO.

7. `Allow future customization of this file <YES>?`

   Answering NO to this question will prevent future installations from customizing the installation. Answer NO only if you do not want to change the installation at any future point. If you answer NO and wish to change the installation, you must re-install the Debugger from the distribution media.

8. `Print release notes automatically <NO>?`

   Answering YES to this question will cause the release notes to be printed on the system line printer during the installation.

9. `Print the installation log automatically <NO>?`

   Answering YES to this question will cause the installation log file to be printed at the end of the installation.

10. `Delete optional installation files <NO>?`

    Answering YES to this question will remove files not necessary for Debugger operation. Use this option if disk space is at a premium. If you choose to delete the optional files, you must install or update future releases from the original kit media.

11. `Do you want to customize DBG (DBG) again (Y/N) <N>?`

    Answer YES if you wish to change any of the above answers.

12. At this point, Auto-Install installs PDP–11 Symbolic Debugger. Throughout the installation process, Auto-Install displays several informational messages. The following messages, or similar messages, are displayed on your terminal:

```
Installation of DBG (DBG) beginning at 10-Jul-90 12:05

Reading [1,16]DBGDBG.CFG.

Transferring kit files to work area.

Updating kit files.

WARNING -- update file DBG202.DAT not found at PATCH$:.
           Kit files not updated; procedure continuing.

Building product DBG (DBG).

?Account _SY:[0,77] already exists
%DEBUG-I-CONFIG, Determining system configuration

%DBGINS-I-TKB, Task building the PDP-11 Symbolic Debugger
TKB>@AUTWRK$:DBGTKB.CMD
%DBGINS-I-TKBDONE, Task build completed

%DEBUG-I-KERNEL, Extracting kernel object file
```

```
%DEBUG-I-MOVEFILES, Files will now be moved to their target locations
[File [0,81]DBGREL.DOC copied to [1,2]DBGREL.DOC]
[File [0,81]PDPDBG.OLB copied to [1,1]PDPDBG.OLB]
[File [0,81]PDPDBG.OBJ copied to [1,1]PDPDBG.OBJ]
[File [0,81]PDPDBG.ODL copied to [1,1]PDPDBG.ODL]
[File [0,81]PDPDBG.TSK copied to [1,2]PDPDBG.TSK]
[File [0,81]PDPDEB.TSK copied to [1,2]PDPDEB.TSK]
[File [0,81]PDPDBG.HLP copied to [1,2]PDPDBG.HLP]
[File [0,81]DBGRFA.HLP copied to [1,2]DBGRFA.HLP]
[File [0,81]USER  .CMD copied to [1,2]USER  .CMD]
[File [0,81]USER  .ODL copied to [1,2]USER  .ODL]
%DEBUG-I-MOVEDONE, All files have been moved to their target locations
Transferring files from work area.
```

13. Following the installation, Auto-Install runs the Installation Verification Procedure (IVP) for PDP–11 Symbolic Debugger.

```
Running IVP command procedure DBGIVP.COM.

%DEBUG-I-IVP, Starting execution of Installation Verification Procedure

        PDP-11 Symbolic Debugger  (RSTS)        V2.2-00

%DEBUG-I-INISTBNAM, TKB-specified STB file is "MACTST.STB"
%DEBUG-W-CURR_NOLANG, Current language is unknown
DBG>@MACTST.CMD
MACTST\START:   MOV     #MACTST\WORKSP,%R0
MACTST\CLOOP:   CLR     (%R0)+
MACTST\CLOOP+000002:     DEC    %R1
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%DEBUG-I-BRK_ENABLED, the recognition of breakpoints is enabled
%DEBUG-I-NOTRCSET, there are no tracepoints currently set
%DEBUG-I-TRC_ENABLED, the recognition of tracepoints is enabled
%DEBUG-I-MODES, modes: symbolic, octal
%DEBUG-I-STEPTYPE, step type: by line, over routine calls
%DEBUG-I-START, start at MACTST\START
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%R1:    001750
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC      %R1
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT      MACTST\CLOOP
%R1:    001747
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC      %R1
%R1:    001744
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT      MACTST\CLOOP
%R1:    001743
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP+000006
%R1:    000000
%DEBUG-I-OUTPUTLOST, output being lost, both NOLOG and NOTERM are in effect
%DEBUG-I-VERIFYICF, exiting indirect command file "MACTST.CMD"
%DEBUG-I-IVPPASS, Installation Verification Procedure Passed
Installation of DBG (DBG) ending at 10-Jul-90 12:10

Installation of DBG (DBG) successful.

Auto-Install ended at 10-Jul-90 12:10
```

4.2.3 Verifying That the Installation Is Successful

The Installation Verification Procedure (IVP) checks to ensure that the installation has been successful. When the IVP is complete and the installation is successful, the following messages are displayed on your terminal:

```
%DEBUG-I-IVPASS. Installation Verification Procedure Passed

Installation of DBG (DBG) successful.
```

If these messages are not displayed, an error has occurred in your installation. In such a case, verify that your system meets the essential conditions listed in Section 4.1.2, and retry the installation from the beginning. If it fails again, contact your Digital Customer Services representative. If necessary, please submit a Software Performance Report (SPR) on one of the forms included in your distribution kit.

4.3 Invoking PDP–11 Symbolic Debugger

After installing, you can invoke PDP–11 Symbolic Debugger with the DEBUG command in DCL.

4.4 Reinstalling

The PDP–11 Symbolic Debugger may be re-installed from the reserved area, PDPDBG$, if you chose not to delete the optional files or from the original distribution media.

4.5 Post-Installation Instructions

To make the PDP–11 Symbolic Debugger available for use after a reboot, add the following line to your system startup file:

```
DEFINE/COMMAND/SYSTEM DEB-UG $PDPDEB.TSK/LINE=CCL/PRIV
```

5
Installation on VMS with VAX–11 RSX

This chapter describes how to use VMSINSTAL to install the PDP–11 Symbolic Debugger on a VMS system with VAX–11 RSX.

5.1 Preparing for the Installation

VMSINSTAL is the command procedure that installs the PDP–11 Symbolic Debugger on your VMS system. As the command procedure executes, it displays questions regarding installation options. This section explains these questions, their answers, and other steps you must take to install the Debugger.

Default settings are provided for all the questions. If you want to accept a default, press Return.

Before you invoke VMSINSTAL, do the following:

1. Log in to the SYSTEM account.
2. Back up your system disk and use the backup copy to perform this installation. This precaution avoids corruption of your system disk if the installation procedure fails.
3. Alter your system to make it standalone, so other user activity does not interfere with this installation.
4. Verify that you have sufficient disk space to install the PDP–11 Symbolic Debugger. Your system requires 1200 free blocks for installation.
5. Issue the command:

```
$  SET DEFAULT SYS$UPDATE
```

5.1.1 Accessing the Release Notes

Release notes are copied automatically as part of the installation procedure. You can retrieve any release notes copied from the SYS$HELP directory. During the installation you will receive a prompt asking if you want to print the release notes and how many copies you want to print.

5.2 Installation

Once you have completed these steps, you are ready to invoke the installation procedure. The installation procedure will take between 5 and 15 minutes depending on your system and type of distribution media. Place your kit in a free drive and type the following command:

```
$  @VMSINSTAL PDPDEBUG022 dev: OPTIONS N
```

Replace *dev* with the device in which you placed your distribution kit.

The installation procedure first checks to ensure that you are running the installation procedure in standalone mode. If you are not doing so, VMSINSTAL issues a warning message that identifies the active processes on your system. It also asks if you want to continue.

```
Do you want to continue anyway [NO]?
```

If you want to install the Debugger in standalone mode, press Return. The installation procedure stops, so you can reconfigure your system and reinvoke VMSINSTAL.

If you want to install the Debugger while processes are active on your system, type YES.

VMSINSTAL then asks you if you are satisfied with the backup of your system disk.

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

If you are not satisfied, type NO. VMSINSTAL will abort, and you can then back up your system disk. If you are satisfied, press Return.

Once you have accepted the backup of your system disk, the following message is displayed:

```
Please mount the first volume of the set on dev:

Are you ready?
```

Because you have already placed the distribution kit in the drive, answer YES to proceed. If you answer NO, VMSINSTAL will abort.

VMSINSTAL confirms that the distribution volume has been mounted; then, the following messages appear:

```
The following products will be processed:

PDPDEBUG V2.2

Beginning installation of PDPDEBUG V2.2 at hh:mm

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

The next prompt displays five release notes options from which you can make a selection.

```
1. Display release notes
2. Print release notes
3. Both 1 and 2
4. Copy release notes to SYS$HELP
5. Do not display, print, or copy release notes

Select option [2]:
```

The effects of these options are as follows:

- Option 1 displays the release notes immediately on your screen. You can terminate the display of the release notes at any time by pressing Ctrl/c. When you have finished, VMSINSTAL copies the release notes to SYS$HELP.
- Option 2 prompts you for a queue name, as follows:

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

  You can either specify a queue name, or press Return to send the file to the default print device. When printing has finished, VMSINSTAL copies the release notes to SYS$HELP.
- Option 3 displays the release notes, prints them, then copies them to SYS$HELP.
- Option 4 copies the release notes to SYS$HELP, but does not print or display them.
- Option 5 does not print, display, or copy the release notes in this step. However, the release notes will be copied to SYS$HELP later during the installation procedure.

Next, VMSINSTAL displays the following prompt:

```
Do you want to continue the installation [NO]?:
```

If you want to continue the installation, type YES and press Return. If you type NO or press Return, VMSINSTAL discontinues the installation.

You will receive the following prompt concerning product licensing:

```
Product:       PDP-11 Symbolic Debugger
Producer:      DEC
Version:       2.2
Release Date:  01-JUL-1990


Does this product have an authorization key registered and loaded?:
```

This prompt refers to the Product Authorization Key (PAK) that is provided in the PDP–11 Symbolic Debugger kit. You must verify that the PDP–11 Symbolic Debugger has been registered correctly. If you have registered the Debugger using the PAK, type YES. If not, type NO or press Return. As a result, VMSINSTAL will discontinue the installation.

The next prompt for input you receive asks the following:

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

If you do not want to save any of the files from the previous version of the Debugger, press Return. The files will be deleted during the installation procedure. However, if you want to save any files from the previous version of the Debugger, type NO.

5.2.1 Verifying That the Installation Is Successful

VMSINSTAL then issues the following informational message:

```
%VMSINSTAL-I-SYSDIR, This product creates system disk directory
SYS$COMMON:[SYSTEST.PDPDEBUG$IVP].
```

The IVP is copied into the system directory SYS$COMMON:[SYSTEST.PDP-DEBUG$IVP] so that the IVP can be run at any time after installing the product. To run the residual IVP after installation, type the following:

```
@SYS$TEST:PDPDEBUG$IVP
```

Note

In order to run IVP after the Debugger has been installed, you must have read, write, execute, and delete access to the directory SYS$COMMON:[SYSTEST.PDPDEBUG$IVP]. Otherwise, the operation will fail.

VMSINSTAL then asks if you want to perform the Installation Verification Procedure (IVP).

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

The IVP tests the Debugger to make sure that it is installed correctly. You should run the IVP after each installation of the Debugger.

If you type NO, the IVP does not run. VMSINSTAL stops and displays a message informing you that it has finished.

If you accept the default, the IVP runs and output from it is displayed on your screen. When the IVP has completed successfully, VMSINSTAL displays a message informing you whether or not the installation was successful.

The PDP–11 Symbolic Debugger is ready for your use when the installation procedure terminates successfully. VMSINSTAL signals successful termination with the following message:

```
VMSINSTAL procedure done at hh:mm
```

Consult the documentation for your programming language for instructions on invoking the Debugger for use with that language.

If the installation is not successful, consult the *Guide to VMS Software Installation* for possible causes of the failure.

5.3 Installing on a VAXcluster

PDPDEBUG$STARTUP.COM, the startup command procedure, is used to set up the environment for the PDP–11 Symbolic Debugger. During the installation it will be placed in the [SYSMGR] directory of the system root on which this installation is being performed.

Your system startup procedure should be modified to invoke this procedure when the system boots. If this installation is done in a VAXcluster environment, you must invoke this command file on the other nodes of the system.

5.4 Sample Installation

```
        VAX/VMS Software Product Installation Procedure V5.3

It is 17-SEP-1990 at 08:43.
Enter a question mark (?) at any time for help.
```

```
%VMSINSTAL-W-ACTIVE, The following processes are still active:
        Working
        Cranking
        _TWA29:
        SERVER_00F0
        SERVER_00EF
        _VTA70:
* Do you want to continue anyway [NO]? YES
* Are you satisfied with the backup of your system disk [YES]?

The following products will be processed:

  PDPDEBUG V2.2

        Beginning installation of PDPDEBUG V2.2 at 08:43

%VMSINSTAL-I-RESTORE, Restoring product save set A ...
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully moved to SYS$HELP.

        Product:      PDP11-SYMBOLIC-DEBUGGER
        Producer:     DEC
        Version:      2.2
        Release Date: 01-JUL-1990


* Does this product have an authorization key registered and loaded? y
* Do you want to purge files replaced by this installation [YES]?

PDPDEBUG$STARTUP.COM, the startup command procedure, is used to set up
the environment for the PDP-11 Symbolic Debugger.   During the
installation it will be placed in the [SYSMGR] directory of the system
root on which this installation is being performed.

Your system startup procedure should be modified to invoke this
procedure when the system boots.  If this installation is done in a
VAXcluster environment, you must invoke this command file on the
other nodes of the system.

* Do you want to run the IVP after the installation [YES]?
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...


PDP-11 Symbolic Debugger Installation Verification Starting


A verification program will now be run
        PDP-11 Symbolic Debugger  (VMS) V2.2-00
```

```
%DEBUG-I-INISTBNAM, TKB-specified STB file is "MACTST.STB"
%DEBUG-W-CURR_NOLANG, Current language is unknown
MACTST\START:   MOV     #MACTST\WORKSP,%R0
MACTST\CLOOP:   CLR     (%R0)+
MACTST\CLOOP+000002:    DEC     %R1
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%DEBUG-I-BRK_ENABLED, the recognition of breakpoints is enabled
%DEBUG-I-NOTRCSET, there are no tracepoints currently set
%DEBUG-I-TRC_ENABLED, the recognition of tracepoints is enabled
%DEBUG-I-MODES, modes: symbolic, octal
%DEBUG-I-STEPTYPE, step type: by line, over routine calls
%DEBUG-I-START, start at MACTST\START
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP
%R1:    001750
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC      %R1
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT      MACTST\CLOOP
%R1:    001747
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000002: DEC      %R1
%R1:    001744
%DEBUG-I-STEP, stepped to MACTST\CLOOP+000004: BGT      MACTST\CLOOP
%R1:    001743
%DEBUG-I-START, start at MACTST\CLOOP
%DEBUG-I-BREAKPOINT, breakpoint at MACTST\CLOOP+000006
%R1:    000000
%DEBUG-I-OUTPUTLOST, output being lost, both NOLOG and NOTERM are in effect
%DEBUG-I-VERIFYICF, exiting indirect command file "IVP$INPUT"

Installation Verification program has been run

Comparing output against master

PDP-11 Symbolic Debugger Installation Verification Successful

        Installation of PDPDEBUG V2.2 completed at 08:45

        VMSINSTAL procedure done at 08:45

$
```

A
Reporting Problems

If an error occurs while you are using the Debugger and you believe that the error is caused by a problem in the Debugger, please take one of the following actions:

- If you purchased the Debugger within the past 90 days and you think the problem is caused by a software error, please submit a Software Performance Report (SPR).
- If you have a Basic or DECsupport Software Agreement, please call your Customer Support Center. With these services, you receive telephone support that provides high-level advisory and remedial assistance. For more information, contact your local Digital Customer Services representative.
- If you have a Self-Maintenance Software Agreement, please submit a Software Performance Report (SPR).

If you find an error in the Debugger documentation, please submit a Reader's Comments form from the back of the document in which the error was found. Please include the number of the page containing the error.