DNOS
TI Pascal
Object Installation

Part No. 2276550-9701 *C
15 January 1984
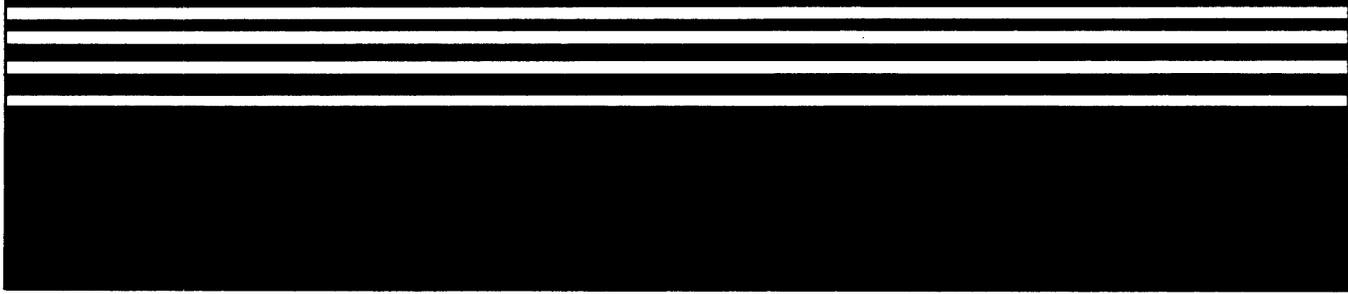
READ FIRST

Preface

This manual gives instructions for installing TI Pascal (TIP). The installation procedure requires that you use DNOS System Command Interpreter commands. You can use the DNOS documentation to find information about commands and how to enter them from a terminal.

Before you install Pascal, read this manual to become familiar with the new installation options available to you. Also, read the DNOS TI Pascal Release Information (part number 2276498-9901).

This manual is written for new Pascal customers. If you are not a new customer and are updating to a new version of Pascal, read the Update Document (part number 2276848-9901) accompanying this software kit.

Questions?

The Texas Instruments customer support line (telephone (512) 250-7407) is available to answer your questions about installing and using TI Pascal. You must meet these conditions, however, before you can use the customer support line:

*   Texas Instruments supplied your software.

*   You did not modify your software.

*   You are a Texas Instruments software subscriber.

If you do not meet all these conditions, contact the supplier of your software.

We hope that you are pleased with your purchase. As you use TI Pascal, please take a moment to fill out a postage-paid User Response Sheet. User Response Sheets are the last pages in the TI Pascal Reference Manual and the TI Pascal Programmer's Guide. Use these sheets to suggest improvements to our product and our manuals. We try to incorporate our customers' comments into the next releases of our products.

Contents

```
+-----------------------------------------------------------------------+
|                                                                       |
|READ  THIS  DOCUMENT  BEFORE ATTEMPTING TO USE THIS OBJECT KIT.|
|THIS DOCUMENT DESCRIBES THE 1.8.0 VERSION OF THE DNOS TI PASCAL|
|OBJECT INSTALLATION MEDIA, PART  NUMBERS  2276496-1601,  -1604,|
|-1605, OR -1606.                                                       |
|                                                                       |
|                                                                       |
|                                                                       |
|TEXAS  INSTRUMENTS  ASSUMES NO RESPONSIBILITY FOR MODIFICATIONS|
|MADE TO THIS OBJECT KIT.                                               |
|                                                                       |
+-----------------------------------------------------------------------+
```

Section 1

Introduction

1.1 GENERAL INFORMATION

Be sure to copy or write protect this master. For copy procedures, refer to the DNOS Operations Guide, part number 2270502-9701.

Some System Command Interpreter (SCI) commands in this document are given in abbreviated form, and you can execute them by entering the command exactly as is, or by using the interactive prompting from SCI. For a discussion of the abbreviated command form, refer to the DNOS System Command Interpreter (SCI) Reference Manual, part number 2270503-9701.

1.2 FILE SECURITY

If you are installing this package on a system that uses file security, be sure to log on with a user ID that is a member of the SYSMGR access group. The proper ID allows you or the installation batch streams executing under your ID to create and delete files. Refer to the DNOS Security Manager's Guide, part number 2308954-9701, for more information on file security.

1.3 MEDIA DEFINITION

Product shipments of TI Pascal (TIP) are made in three formats:

*   Disk -- A disk pack or three double-sided, double-density diskettes that contain the object.

*   Magnetic Tape -- A magnetic tape reel that contains the object.

*   Add-On -- A disk pack that contains the object and one or more other products on the same disk pack.

The installation instructions in this document assume that the object files are accessible by a synonym. Section 2 describes how to prepare the media so that the files can be accessed by a synonym.

1.4 THE INSTALLATION PROCEDURE

The object media contains the files, batch streams, and SCI commands to perform the following:

*   Install the object files

*   Verify the installation

1.5 SYSTEM REQUIREMENTS

To successfully perform this installation procedure, you must have a functioning DNOS 1.X system.

Section 2

Preparing for Installation

2.1 INTRODUCTION

Before you execute the installation procedure, prepare the object files so that the installation command can access them. The following paragraphs describe how to prepare each type of media.

2.2 DISK FORMAT

If you receive the Pascal object either on a single disk or on multiple diskettes, you need to prepare either type of media, as described in the following paragraphs.

2.2.1 Single Disk

1. Load the installation disk in an available disk drive on a functioning DNOS 1.X system.

2. Install the disk by issuing the following command:

        IV U=DSxx, V=DNPASCAL

    In this command, DSxx is the disk drive on which DNPASCAL is loaded.

    Now proceed to Section 3 for instructions for installing the object.

2.2.2 Multiple Diskettes

1. Load the first installation diskette, volume name DNPASCA1, in an available diskette drive on a functioning DNOS 1.X system.

2. Install the diskette by issuing the following command:

        IV U=DSxx, V=DNPASCA1

   In this command, DSxx is the diskette drive on which
   DNPASCA1 is loaded.

   Now proceed to Section 3 for instructions for
   installing the object.

2.3   MAGNETIC TAPE FORMAT

If you receive the object on a magnetic tape, you must first move
the files to a disk before beginning the installation · process.
To accomplish this task, perform the following steps:

1. Create a directory on a disk by issuing the following
   command:

        CFDIR P=volname.DNPASCAL, M=20

   In this command, volname is the name of the disk on
   which the directory is created.

2. Load the magnetic tape on an available tape drive.

3. Move the contents of the magnetic tape to the directory
   you created by issuing the following command:

        RD S=MTxx, D=volname.DNPASCAL, L=.LISTING,

   In this command, volname is the name of the disk that
   receives the restored directory. The file .LISTING now
   contains a listing of the directory restored from the
   magnetic tape. You can examine this file by executing
   a Show File (SF) or a Print File (PF) command.

4. Unload the tape.

5. Assign the synonym DNPASCAL to the pathname of the
   restored directory by issuing the following command:

        AS S=DNPASCAL, V=volname.DNPASCAL

   In this command, volname is the volume name of the disk
   that receives the restored directory.

Now proceed to Section 3 for instructions for installing the
object.

2.4 ADD-ON FORMAT

If you receive the object as an add-on package, use the following
steps to prepare it for installation.

1. Load the disk containing the add-on package in an
   available disk drive.

2. Install the disk by issuing the following command:

       IV U=DSxx, V=volname

   In this command, DSxx is the disk drive on which the
   volume is loaded, and volname is the volume name of the
   add-on disk. The volume name is marked on the disk or
   you can execute a Show Volume Status (SVS) command to
   obtain the volume name.

3. Assign the synonym DNPASCAL to the Pascal object
   directory by issuing the following command:

       AS S=DNPASCAL, V=volname.DNPASCAL

Now proceed to Section 3 for instructions for installing the
object.

Section 3

Installing the Object

3.1 INTRODUCTION

The TI Pascal object media contains both the object files and the
batch stream necessary to install Pascal on a DNOS 1.X system.
Before you install Pascal, you need to consider Pascal's disk
space requirements. Pascal requires a certain amount of disk
space for installation.

A disk requires about 2000K bytes of space to hold the entire
Pascal package. Use an SVS command to find the amount   of space
available on your system disk. Multiply the value of BYTES/ADU
times the value of AVAILABLE (avaliable ADUs) to estimate the
number of bytes available on the disk.

A disk must have a minimum of 900K bytes of space to contain just
the compiler (1K represents 1024).

You can install Pascal using any of the following three
configurations. Choose the configuration you use according to
the space you have on your system.

   * If 2000K bytes are available on the system disk, you can
      install Pascal on the system disk.

   * If 2000K bytes are not available on the system disk, but
      at least 900K bytes are available, you can install the
      compiler on the system disk and leave the run-time
      support on the installation disk or put it on a
      secondary disk.

   * If less than 900K bytes are available on the system
      disk, you must leave the entire package on the
      installation disk or install the package on a secondary
      disk.

You can choose which of these configurations to use by responding
to the appropriate installation command prompts, as discussed in
the following paragraphs.

3.2 INSTALLING PASCAL

The following instructions describe how to install Pascal on the
system disk or a secondary disk. They also tell how to install
Pascal and leave the compiler or run time on the installation
disk. The installation process performs the following:

* Automatically deletes any previously installed version
  of Pascal.

* Installs the Pascal compiler, error message files, run-
  time support library, support utilities, and SCI
  procedures.

* Generates an output file that you can examine to ensure
  that Pascal is properly installed.

* If Pascal is installed successfully, updates the
  software configuration file (S$SYSTEM.S$HSTRY)   to
  indicate that Pascal is installed.

3.2.1 Installation Procedure
To install Pascal, perform the following steps:

1. When you install the compiler and run time on a
   secondary disk, load the disk in an available disk
   drive and install it by issuing the following command:

       IV U=DSxx, V=volname

   In this command, DSxx is the disk drive in which the
   secondary disk is loaded, and volname is the volume
   name of the secondary disk.

2. Access the installation command procedures library by
   issuing the .USE primitive, as follows:

   a. If you receive the Pascal object on a single
      disk, magnetic tape, or as an add-on package,
      enter the .USE primitive as follows:

       .USE DNPASCAL, .S$CMDS

   b. Otherwise, if you received the Pascal object on
      diskettes, issue the .USE primitive as follows:

       .USE DNPASCA1, .S$CMDS

The following menu should appear:

```
┌─────────────────────────────────────────────┐
│                                             │
│      DNOS TI PASCAL 1.8.0. INSTALLATION     │
│                                             │
│                                             │
│      INSTALL  -  INSTALL TI PASCAL          │
│      VERIFY  -  VERIFY THE INSTALLATION     │
│                                             │
└─────────────────────────────────────────────┘
```

The installation library contains two SCI commands, one to install Pascal (INSTALL) and one to verify the installation (VERIFY).

3. Install Pascal by entering the INSTALL command and answering the prompts, as follows:

    [ ]INSTALL

    INSTALL TI PASCAL <VERSION 1.8.0 YYDDD>
          COMPILER TARGET VOLUME: volname
          RUN TIME TARGET VOLUME: volname
                     SYSTEM DISK: volname
    SUPPORT FIXED AND DECIMAL?: {Y/N}   (YES)
    INSTALLATION BATCH LISTING: pathname   (.LISTING)
    INSTALLING FROM DISKETTES?: {YES/NO}   (YES)

    COMPILER TARGET VOLUME
        Enter the name of the disk volume where you want to install the Pascal compiler program file. If you press the Return key without entering anything (null response), the installation procedure installs the compiler on the system disk. Enter DUMY if you wish to leave the compiler on the installation disk.

RUN TIME TARGET VOLUME
    Enter the name of the disk where you want to
    install the Pascal run-time support libraries. If
    you enter the null response, the installation
    procedure installs the run-time object files on
    the system disk. Enter DUMY if you wish to leave
    the run time on the installation disk.

SYSTEM DISK
    Enter the name of the system disk that will be
    installed when you execute the Pascal compiler.
    The installation procedure installs the compiler's
    SCI procedures and error message files on this
    disk. Also, the installation procedure updates
    the software history file on this volume. If you
    wish to use the current system disk, enter the
    null response.

SUPPORT FIXED AND DECIMAL?
    At your option, you can install support for FIXED
    and DECIMAL arithmetic. Enter YES to merge the
    FIXED and DECIMAL support with the rest of the
    run-time object library (on the run-time target
    volume). If you do not require FIXED or DECIMAL
    support, enter NO to leave the object for these
    programs on the installation disk.

INSTALLATION BATCH LISTING
    Enter the name of the file where you want to send
    the installation batch stream listing.

INSTALLING FROM DISKETTES?
    If you receive the Pascal object on diskettes,
    enter YES. Otherwise, enter NO. If you enter
    YES, an additional prompt will appear:

        INSTALL TI PASCAL FROM MULTIPLE DISKETTES
        WHICH DISKETTE(1,2,3)?: integer

    Enter the number of the installation diskette
    currently installed (for DNPASCA1, enter 1; for
    DNPASCA2, enter 2; for DNPASCA3, enter 3).

After you respond to the prompts, the INSTALL command
executes the installation batch stream. A message
appears, indicating that the installation is in
progress. Installation normally takes about 30
minutes. During this time, you may wish to check the
status of the installation batch stream for completion
and proper execution. Execute the SCI command Show
Background Status (SBS) or Wait (WAIT) to have SCI
notify you when the batch stream completes, or enter
the Show File (SF) command to examine the file whose

name you entered in response to the INSTALLATION BATCH
LISTING prompt.

When the installation batch stream finishes, this
message appears on the console:

    TIP INSTALLATION COMPLETED WITH n ERRORS

If there are errors in the batch execution, examine the
batch listing to determine the error. The following
error codes are normal and should be ignored.

*   0316 error in a Create Directory File (CFDIR)
    command

*   0315 error in a Delete Directory (DD) command

*   0305 error in a Modify File Protect (MFP)
    command

*   3158 error in a Delete Task (DT) command

If you are installing Pascal from diskettes, issue the .USE
primitive to return to the default DNOS menu, as follows:

    .USE

Unload DNPASCA1 and load the second diskette, DNPASCA2 (refer to
paragraph 2.2.2 for instructions on how to load and install
diskettes). Access the installation command procedures library
by issuing the .USE primitive, as follows:

    .USE DNPASCA2, .S$CMDS

Execute the INSTALL command again, this time answering YES to the
INSTALLING FROM DISKETTES? prompt and 2 to the WHICH DISKETTE
(1,2,3)? prompt. When the installation batch stream finishes,
issue the .USE primitive to return to the default menu, as
follows:

    .USE

Unload DNPASCA2. Repeat the loading and installation process
again for the third diskette, DNPASCA3.

3.2.2 S$TIP Logical Name

The Pascal command procedures access the compiler and error files using the DNOS global logical name S$TIP. The installation batch stream assigns this logical name to the proper library automatically. However, if not everyone on the system requires Pascal, you can modify the log-on procedure S$CMDS.M$00 to assign the logical name S$TIP, as follows:

```
RLN LNAME=S$TIP, GNAME=YES
ALN LNAME=S$TIP, ACNM=volname.TIP
```

In the preceding example, volname is the name of the disk where the compiler is installed. The example commands assign the logical name S$TIP at the job-local level, allowing Pascal to be associated with individual user IDs.

If you did not install the run-time library on the same disk as the compiler, text edit the files .S$CMDS.XTIPL and CMPVOL.TIP.TIPBATXL. First, find this line in the files:

```
LIBRARY S$TIP.OBJ
```

Modify the line to include the volume name (represented by volname) where the run time is installed:

```
LIBRARY volname.S$TIP.OBJ
```

3.2.3 Pascal Default Directory Synonym

Pascal programs that access external files use the synonym $TIP to specify the directory in which the default pathnames are created. In addition, the compiler uses the synonym to specify the directory that holds the compiler internal temporary files. You can cause $TIP to be assigned automatically when someone logs on. To accomplish this, edit the file S$CMDS.M$00 and add the following lines:

```
.IF "@$TIP",EQ," "
.SYN $TIP=" "
.ENDIF
```

In the preceding example, the log-on procedure sets $TIP so that all default pathnames are created on the system disk.

To cause the log-off procedure to delete the Pascal temporary files automatically, edit the file .S$CMDS.M$01 to add the following lines:

```
.IF "@$TIP",NE,"$TIP"
P$DELETE ST=@$$ST
.ENDIF
```

The preceding example causes the log-off procedure to delete all
the default files in the directory specified by $TIP (including
all compiler temporary files) when someone logs off a terminal.

The following components of the Pascal object are installed on
the target disks during installation:

Run-time object libraries:
  RTLVOL.TIP.
    LUNOBJ   Alternate versions for use without SCI
    MINOBJ   Minimal run time
    OBJ   Standard run time
    MISC   VDT and KIF routines

Miscellaneous files:
  SYSVOL.TIP.CFGERR   Error messages for configuration
                                processor
  SYSVOL.TIP.ERRORS   Error messages for compiler
  SYSVOL.S$MSG.PASCAL   Error messages for run time
  SYSVOL.S$EXPMSG.PASCAL   Expanded error messages for run time
  CMPVOL.TIP.TIPBATXL   Control stream for background XTIPL
                                procedure
  CMPVOL.TIP.TIPBATXS   Control stream for background XSILT
                                procedure
  CMPVOL.TIP.TIPBATXT   Control stream for background XTIP
                                procedure

Program file tasks in CMPVOL.TIP.PROGRAM

ID	Name	Description
01	SILT1	Parser -- First pass of compiler
02	SILT2	Semantic processor -- Second pass of compiler
03	CODEGEN	Code generator -- Fourth pass of compiler
04	CONFIG	Configuration processor
05	NESTER	Source program reformatting utility
06	SPLITOBJ	Object module split utility
07	RASS	Reverse assembler
09	SPLITPGM	Source module split utility
OB	P$DELETE	Delete temporary files
OD	T9OPT	Optimizer -- Third pass of compiler
OE	EXTRACT	Assembly language extractor
OF	PSCLXREF	Cross-reference utility
12	PREPROC	Preprocessor utility

SCI procedures:
  SYSVOL.S$CMDS.

M$TIP	Menu
MODE$$	Select Execution Mode
P$DELETE	Delete temporary files
P$INIT	Initialize temporary file directory
P$SYN	Delete synonyms
SPID	Show Pascal version ID
XALX	Execute assembly language extractor
XCODE	Execute code generator
XCONFIG	Execute configuration processor
XCONFIGI	Execute configuration processor interactively
XNESTER	Execute source reformatter utility
XP$2	Process options for preprocessor and compiler
XPP	Execute preprocessor
XPT	Execute a Pascal task
XPX	Execute cross-reference utility
XR$1	Test option parameter for foreground option
XRASS	Execute reverse assembler
XSILT	Execute syntax check portion of compiler
XSPLIT	Execute object split utility
XSPLITPG	Execute source program split utility
XTIP	Execute compiler
XTIPL	Execute compiler and link editor

If you wish to delete the installed components from your system, use the MFP, Delete File (DF), DD, DT, or Delete Procedure (DP) commands, as appropriate, to remove the components listed in the preceding list.

If you wish to verify that the installation was successful, proceed to Section 4 for instructions on how to execute the VERIFY command.

Otherwise, return to the default command library by issuing the .USE primitive:

    .USE

If you received the Pascal object on a disk, and you did not leave the compiler or the run time on the installation disk, unload the disk by issuing the IV command:

    UV VOLUME NAME=volname

In the UV command, volname is the name of the object installation disk (DNPASCAL for a single disk, DNPASCA3 for diskettes).

Section 4

Verifying the Installation

The Pascal installation disk provides a command you can use to test whether the Pascal object files are properly installed. The command executes a batch stream that performs the following:

* Compiles a test Pascal program

* Exercises the nester, split program, configuration processor, reverse assembler, assembly language extractor, and split object utilities

* Link edits this test program

* Executes this test program

NOTE

This test assumes that the Pascal SCI procedures are installed on the current system disk. Therefore, this test cannot execute if you named a secondary disk as the system disk when you installed Pascal.

1. To test Pascal, execute the VERIFY SCI command, as follows:

   [ ]VERIFY

   ```
   VERIFY TI PASCAL INSTALLATION
         OUTPUT FILE DIRECTORY: pathname
          BATCH STREAM LISTING: pathname      (.LISTING)
   INSTALLING FROM DISKETTES?: {YES/NO}       (YES)
   ```

Respond to the prompts as follows:

OUTPUT FILE DIRECTORY
Enter the name of the directory that is to hold the files and listings the test program uses. If you create the directory, allow 30 entries. If you do not create the directory, the VERIFY command creates it for you.

BATCH STREAM LISTING
Enter the pathname of the file that is to hold the batch stream listings.

INSTALLING FROM DISKETTES?
If you received the Pascal object on diskettes, enter YES. Otherwise, enter NO. If you enter YES, make sure that the diskette DNPASCA3 is installed.

2. After you enter the command, the following message appears:

BEGIN TI PASCAL VERIFICATION TEST

3. The test batch stream executes for about 10 minutes. You can use the SBS or WAIT commands to have SCI notify you when the tests complete. Also, you can use the SF command to inspect the file whose name you entered in response to the BATCH STREAM LISTING prompt of the VERIFY command.

4. When the test completes, a message appears, indicating whether the tests were successful.

5. If the tests fail, check the listing file whose name you gave in response to the BATCH STREAM LISTING prompt to determine the cause of the failure.

6. Return to the default command library by issuing the .USE primitive:

.USE

7. If you received the Pascal object on a disk, and you did not leave the compiler or the run time on the installation disk, unload the disk by issuing the IV command:

UV VOLUME NAME=volname

In the UV command, volname is the name of the object installation disk (DNPASCAL for a single disk, DNPASCA3 for diskettes).