Digital SNA Application Programming Interface for OpenVMS

Installation

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This document describes how to install the Digital SNA Application Programming Interface for OpenVMS, Version 2.4 software. The document also explains how to configure the IBM software to communicate with the interface.

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Operating System and Version:	OpenVMS VAX Versions 6.1, 6.2, or 7.0 OpenVMS Alpha Versions 6.1, 6.2, or 7.0
Software Version:	Digital SNA Application Programming Interface for OpenVMS, Version 2.4

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Preface

The Digital SNA Application Programming Interface (API) for OpenVMS is a Digital Equipment Corporation software product that enables OpenVMS VAX and OpenVMS Alpha users to communicate with programs running on IBM systems through one of Digital's interconnect systems.

Manual Objectives

The *Digital SNA Application Programming Interface for OpenVMS Installation* manual provides the information needed to install and verify the API software.

Intended Audience

The *Digital SNA Application Programming Interface for OpenVMS Installation* manual is intended for system managers and network managers responsible for the installation of the Application Programming Interface.

Document Structure

This document consists of two chapters.

Chapter 1	Provides introductory information about Application Programming Interface.
Chapter 2	Describes the installation process, including the Product Authorization Key (PAK) and Installation Verification Procedure (IVP). It also contains sample installations.

Associated Documents

The following is a list of documents related to the Application Programming Interface:

- *Digital SNA Application Programming Interface for OpenVMS Installation*
- *Digital SNA Application Programming Interface for OpenVMS Problem Solving*

- *Digital SNA Application Programming Interface for OpenVMS Programming*

You should have the following Digital documents available for reference when you use the Application Programming Interface:

- *Digital SNA Domain Gateway Installation*
- *Digital SNA Domain Gateway Management*
- *Digital SNA Domain Gateway Guide to IBM Resource Definition*
- *DECnet SNA Gateway Problem Determination Guide*
- *DECnet SNA Gateway-CT Installation*
- *DECnet SNA Gateway-CT Problem Solving (OpenVMS & ULTRIX)*
- *DECnet SNA Gateway-CT Management (OpenVMS)*
- *DECnet SNA Gateway-CT Guide to IBM Parameters*
- *DECnet SNA Gateway-ST Installation*
- *DECnet SNA Gateway-ST Problem Solving (OpenVMS)*
- *DECnet SNA Gateway-ST Guide to IBM Parameters*
- *DECnet SNA Gateway Management for OpenVMS*
- *Digital Peer Server Installation and Configuration*
- *Digital Peer Server Management*
- *Digital Peer Server Network Control Language Reference*
- *Digital Peer Server Guide to IBM Resource Definition*
- *OpenVMS SNA Installation*
- *OpenVMS SNA Problem Solving*
- *OpenVMS SNA Guide to IBM Parameters*
- *OpenVMS SNA Management*
- *OpenVMS SNA Problem Determination Guide*

See the following documents for more information about the IBM 3270 Information Display System:

- *ACF for VTAM Version 2, Messages and Codes* (IBM Order No. SC27-0614)
- *IBM 3270 Information Display System and 3274 Control Unit Description and Programmer's Guide* (IBM Order No. GA23-0061)

- *IBM 3287 Printer Models 1 and 2 Component Description* (IBM Order No. GA27-3153)
- *MVS/TSO/VTAM Data Set Print Program Description/Operations Manual* (IBM Order No. SB21-2070)
- *IBM 3270 Information Display System*, Order No. GA23-0060
- *IBM 3270 Information Display System Data Stream Programmer's Reference*, Order No. GA23-0059
- *Systems Network Architecture—Introduction to Sessions Between Logical Units*, Order No. GC20-1869
- *Systems Network Architecture—Sessions Between Logical Units*, Order No. GC20-1868
- *IBM 3270 Information Display System: Operator's Guide*, Order No. GA27-2742

Conventions Used in This Manual

The following table summarizes the graphic conventions that are used in this manual.

Convention	Meaning
`Special type`	This special type indicates an example of system output or user input.
UPPERCASE	Uppercase letters in command syntax indicate keywords that you can enter. You can enter keywords in either uppercase or lowercase.
italics	Italics in command syntax or examples indicate variables for which either you or the system supplies a value.
[ ]	Square brackets in command syntax statements indicate that the enclosed value(s) are optional. Default values apply for unspecified options. (Do not type the brackets.)
{ }	Braces in command syntax statements indicate that you must specify one, and only one, of the enclosed values. (Do not type the braces.)
( )	Parentheses enclose a group of values that you must specify for an operand. Type the values in the line of code in the order indicated. Type parentheses wherever they appear in a line of code.
hh:mm:ss	Indicates hours, minutes, and seconds
KEY	This symbol indicates a key that you should press. For example, RET means that you should press the RETURN key.
CTRL/*x*	This notation means that you should hold down the CTRL key and press the key specified by *x* at the same time.

You must press RETURN to enter all commands.

1
Preparing for Installation

Before you install the Digital SNA Application Programming Interface for OpenVMS software, referred to as API, you should prepare your system.

This installation involves writing to your system disk. Digital recommends that you make a backup copy of your system disk before you begin.

1.1 Checking the Distribution Kit

Before beginning the installation, check that you have a complete distribution kit by comparing the kit against the bill of materials (BOM). If any part of the kit is missing, contact your Digital representative. Each API kit consists of one or more volumes of software media (depending on the media) and a set of documentation.

1.2 OpenVMS System Requirements

This section discusses OpenVMS requirements and calculates parameter values for the API.

1.2.1 Installation Requirements

Before you install the API software, verify that the specifications in Table 1–1 and the disk space requirements in Table 1–2 have been met.

Table 1–1 Installation Specifications

Requirement	OpenVMS VAX Specifications	OpenVMS Alpha Specifications
Software	Versions 6.1, 6.2, or 7.0	
Privileges	system manager	system manager
Image sections	3	4
Global pages	68	944
Approximate installation time	5 to 15 minutes, depending on the medium used	
Associated Documents	*OpenVMS Software Installation* contains general installation information	

Table 1–2 Disk Space Requirements

Requirement	OpenVMS VAX Free Blocks	OpenVMS Alpha Free Blocks
Minimum for API installation	12,947	12,947
Permanent for API and all languages	5548	5548
Permanent for API installation	1152	1520
For ADA	3302	3088
For BASIC	78	78
For BLISS	63	63
For C	91	91
For FORTRAN	72	72
For LIBRARY	47	47
For MACRO	271	271
For Pascal	186	186
For PLI	132	132

To determine how much permanent disk space you need after installation of a particular language, add the permanent disk space required for that language to the disk space required for API. For example, on OpenVMS VAX, to the permanent disk space for BASIC, which is 78 blocks, add 1152 blocks, which are required for API. A total of 1230 blocks are required.

1.2.1.1 OpenVMS SNA and Gateway Support

Version 2.4 of the API software also requires one of the following system configurations for proper operation: Either the DECnet SNA Gateway-ST, DECnet SNA Gateway-CT, Digital SNA Domain Gateway-ST, Digital SNA Domain Gateway-CT, Digital SNA Peer Server, or systems must be part of OpenVMS SNA (OpenVMS VAX Version 6.1 or Version 6.2 only). For more information on these products, see the following documentation:

- *DECnet SNA Gateway Management for OpenVMS*
- *DECnet SNA Gateway-ST Installation*
- *DECnet SNA Gateway-CT Installation*
- *Digital SNA Domain Gateway Installation*
- *OpenVMS SNA Installation*
- *Digital Peer Server Installation and Configuration*
- *Digital Peer Server Management*
- *Digital Peer Server Network Control Language Reference*
- *Digital Peer Server Guide to IBM Resource Definition*

1.2.2 OpenVMS License Management Facility Requirements

Before you install API, you should register your Product Authorization Key (PAK) with the License Management Facility (LMF). The PAK, which contains information about the license, is a paper certificate shipped with the product.

During the installation, the system prompts you asking if you have registered the Application Programming Interface license and loaded the appropriate Product Authorization Key (PAK). If you have not already done so, you can complete the installation and run the Installation Verification Procedure (IVP). The Application Programming Interface will not run if you have not registered the license or loaded the PAK. Once you perform the license registration and have loaded the PAK, you will be able to run the Application Programming Interface.

To register and load the license, log in to the system manager's account. Then type the following command:

```
@ SYS$UPDATE:VMSLICENSE.COM
```

When you are prompted for information, enter the data from your PAK. For more information on LMF, see the *OpenVMS License Management Utility Manual* in the OpenVMS documentation set.

1.2.3 OpenVMS Tailor Requirements

The required classes are: OpenVMS Required Save Set, Network Support, Programming Support, and Utilities. Be certain these classes are installed on your system before installing the product. Refer to OpenVMS Tailor documentation in the OpenVMS documentation set for more information.

1.2.4 Calculating the Value for GBLSECTIONS

Make sure that you have enough global pages and global sections free. If there are not enough global pages and global sections, the API software cannot be installed as a shareable image. You can check the number of global pages and global sections available by entering the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
SYSGEN> SHOW GBLPAGES
SYSGEN> SHOW GBLSECTIONS
```

You can then check the number of global pages and global sections in use by entering the following commands:

```
$ INSTALL
INSTALL> LIST/GLOBAL
```

By subtracting the second set of values from the first, you can determine if there are enough global pages and global sections available for your use. If you need to modify these values, you must edit the SYS$SYSTEM:MODPARAMS.DAT file and include the following lines.

For OpenVMS VAX:

```
ADD_GBLPAGES=68
ADD_GBLSECTIONS=3
```

For OpenVMS Alpha:

```
ADD_GBLPAGES=994
ADD_GBLSECTIONS=4
```

After modifying these values, you must run AUTOGEN by using the following commands:

```
$ @SYS$UPDATE:AUTOGEN SAVPARAMS GENPARAMS
$ @SYS$UPDATE:AUTOGEN SETPARAMS REBOOT
```

These commands will recompute your system parameters. AUTOGEN will also perform an automatic shutdown and reboot when it is finished.

1.3 VMScluster Considerations

This layered product is fully supported when installed on any valid and licensed VMScluster configuration, with the following restrictions:

- The API must be installed and run on each node in the VMScluster containing a synchronous communications interface connected to an IBM system.
- When you run the API in interactive mode, you must run it from a node with a synchronous device interface and API locally installed.

1.4 OpenVMS Optional Products

For general background information on installing optional products on an OpenVMS system, refer to the *OpenVMS Software Installation* . This manual has an appendix dealing with optional product installation.

1.5 VMSINSTAL Requirements

Installing the Application Programming Interface on an OpenVMS system involves running the VMSINSTAL procedure. The dialogue is self-explanatory. The system tells you to answer questions and waits for you to tell it to continue. Most questions require a simple YES (Y) or no (N) answer. The questions display default answers (where available) in the following way:

```
[YES]:
```

To answer a question with the default YES, press [RET].

When you invoke VMSINSTAL, it checks that:

- You are logged in to a privileged account.
- You have adequate quotas for installation.
- All users are logged off.

Note that the following explanation of VMSINSTAL deals with the simplest case; in actual practice, the procedure may ask other questions, depending on your configuration and the products already installed. Refer to the *Guide to OpenVMS Software Installation* for a full description of how VMSINSTAL works.

To install the distribution kit on your OpenVMS host:

- Log in to the system manager's account.
- Make sure you have backed up the system disk.

- Make sure that you have at least 12,947 free blocks on the system disk.
- Make sure that you have 68 global pages free (for OpenVMS VAX) or 944 (for OpenVMS Alpha). (If there are not enough global pages, the API cannot be installed as a shareable image.)
- Make sure you have five global sections free.
- Make sure that all users are logged out and all batch jobs are complete.

1.5.1 Using VMSINSTAL

VMSINSTAL is a command procedure that installs OpenVMS layered software products. The VMSINSTAL command line has the following format:

$ @SYS$UPDATE:VMSINSTAL SNALU0*nnn ddcu*: [OPTIONS N]

where:

nnn represents the major version number and the current maintenance update in that version.

The first and second digits represent the major version number, and the third digit represents the current maintenance update version number. For the version number of your kit, refer to the label on the distribution kit or the BOM. If you do not supply the product name and version number, VMSINSTAL prompts you for them.

ddcu represents a device name for the API installation media, where *dd* is the device code, *c* is the controller id, and *u* is the unit number.

It is not necessary to use the console drive. If you do not supply the device name, VMSINSTAL prompts you for it. MTA0: is the device name used in examples in this document.

OPTIONS N is an optional parameter you should provide if you want to be prompted to display or print the release notes.

If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display or print the release notes.

When you install a product using VMSINSTAL, you have two installation options. Either you can enter the VMSINSTAL command line specifying the product name, version number, device name, and release notes option, or you can enter the following command:

$ @SYS$UPDATE:VMSINSTAL

If you enter the preceding command, VMSINSTAL prompts you for the product name, version number, and device name during the installation. If you use this command, you do not have the option of displaying or printing the release notes.

1.6 Accessing the On-line Release Notes

This product provides on-line release notes. You should review the release notes before installing the product. They contain the latest enhancements to the product, which may include changes to the installation procedure. If you specify the OPTIONS N parameter on the VMSINSTAL command line, the system prompts you regarding how you would like to see the release notes. After installing the product, you can read the release notes in the file SYS$HELP:SNALU0*vvu*.RELEASE_NOTES, where *vv* is the major version number and *u* is the update number (1 digit).

2
Installing the API

This chapter describes how to install the Digital SNA Application Programming Interface for OpenVMS (referred to as API). It contains a step-by-step description of the installation considerations. The final section includes sample system installation logs using PAK information and VMSINSTAL.

2.1 The Installation Procedure

The API installation consists of a series of questions and informational messages. The process takes 5 to 15 minutes to complete.

Note

You can install the API software from two locations: the Consolidated Software Distribution CD-ROM or a remote node in your local area network using the Remote Installation Service (RIS). The VMSINSTAL procedure presented in this chapter assumes the API software is being installed from your local area network.

To install the API software from the Consolidated Software Distribution CD-ROM, see the master index table in the document *Consolidated Software Distribution Disk User's Guide* for the directory containing the API files.

2.1.1 Running VMSINSTAL

Digital recommends that you use a hard-copy terminal for installing the API software if you would like a copy of the installation process. If you have a hard-copy terminal, you can produce a copy of the installation procedure in a file by typing:

```
$ SET HOST 0/LOG=filename
```

where:

filename is the name of the file in which you want the log file stored.

Step 1: Log in to system manager's account.

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account.

```
Username: SYSTEM [RET]
Password:        [RET]
```

Step 2: Invoke VMSINSTAL.

Use the following syntax to invoke VMSINSTAL:

```
$ @SYS$UPDATE:VMSINSTAL SNALU0nnn ddcn: OPTIONS N
```

Replace *nnn* in the product name with the version number of the software, for example, SNALU0024.

Replace *ddcn* with the name of the device on which you plan to mount the media, where *dd* is the device name, *c* is the controller ID, and *n* is the unit number.

OPTIONS N is an optional parameter that indicates you want to be prompted to display or print the release notes, or copy them to SYS$HELP. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display, print, or copy the release notes. Please read the release notes before proceeding with this installation.

```
            OpenVMS Alpha Software Product Installation Procedure V6.1

It is dd-mmm-yyyy at hh::mm.
Enter a question mark (?) at any time for help.
```

Step 3: Product Installation Begins.

VMSINSTAL displays a message that the media containing the API has been mounted on the specified device and that the installation has begun.

```
Please mount the first volume of the set on ddcn:
* Are you ready? YES
%MOUNT-I-MOUNTED, SNALU0 mounted on _ddcn:

The following products will be processed:

SNALU0 Vn.n

    Beginning installation of SNALU0 Vn.n at hh::mm

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

Where *n.n* is automatically replaced with the version number of the API, for example, V2.4.

Step 4: Select a release notes option.

If you specified OPTIONS N when you invoked VMSINSTAL, the installation procedure prompts you for a release notes option.

```
Release Notes included with this kit are always copied to SYS$HELP.
Additional Release Notes Options:

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

* Select option [2]:
```

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

If you select option 2 or 3, VMSINSTAL prompts you for a print queue name:

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

Enter a queue name or press RETURN to send the file to the default output print device, SYS$PRINT.

No matter which option you select, VMSINSTAL then asks you if you want to continue the installation. Answer YES to continue or NO to exit VMSINSTAL.

```
* Do you want to continue the installation? YES
%VMSINSTAL-I-RELMOVED, The products release notes have been successfully
moved to SYS$HELP.
```

Step 5: Register the product with the License Management Facility.

The installation procedure prints out information specific to the particular license and asks if you have registered and loaded your PAK for the API.

```
Product:             SNA-API
Producer:            DEC
Version:             n.n
Release Date:        dd-mmm-yyyy

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

If you have not registered and loaded your PAK, answer NO to this question. The installation reminds you to register the PAK before you run the product. The installation continues.

Step 6: Select installation options.

You have the option to purge files from previous versions of the API that are superseded by this installation. Purging is recommended because it will save disk space.

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

The system now asks if you want to have the IVP run automatically at the end of the installation. The IVP for the API checks to be sure that the installation is successful. You should run the IVP immediately after installation.

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

Press RETURN to exit from the procedure, unless you have more products to install using VMSINSTAL.

Step 7: Select language symbols.

You have the option of installing only those symbol files necessary for the programming languages you are using. You need 4138 blocks of disk space to install all the symbol files.

If you do not want all the symbol files offered, answer NO to the following:

```
* Would you like all the symbol files installed on this system [Y]?
```

A NO answer to this question results in a list that displays the languages offered and the disk requirements for the symbol files of each of those languages.

```
 Please enter Yes (Y) or No (N) if you want the symbol files
 installed for the following languages:

*       ADA (XXXX blocks) [N]?
*       BASIC (XX blocks) [N]?
*       BLISS (XX blocks) [N]?
*       CC (XXX blocks) [N]?
*       FORTRAN (XXX blocks) [N]?
*       LIBRARY (XX blocks) [N]?
*       MACRO (XX blocks) [N]?
*       PASCAL (XXX blocks) [N]?
*       PLI (XXX blocks) [N]?

        You have chosen the following languages:
            ()

* Is this OK [Y]?
```

Step 8: Read informational message.

The installation procedure now displays the following informational message:

```
%SNALU0-I-NOQUEST, No further questions will be asked

        The IVP for this product, SNALU0$IVP.COM, can be found in
        the SYS$TEST directory.

        To install the SNALU0SHR.EXE and SNALU0MSG.EXE images as
        shareable each time the system reboots, you must add the
        following line to your system startup procedure:

                $ @SYS$STARTUP:SNALU0$STARTUP

        On-line release notes for this product can be found in the file,
                SYS$COMMON:[SYSHLP]SNALU00nn.RELEASE_NOTES

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

Step 9: The IVP is run.

The installation procedure calls the IVP to verify that the API software was successfully installed. The system displays the following messages:

```
** Digital SNA Application Programming Interface for OpenVMS Vn.n Installation Test **
.... Testing API Vn.n file locations
.... Testing API Vn.n

** Digital SNA API for OpenVMS Vn.n Test Successful **
```

Step 10: End the installation procedure.

The following messages indicate that the entire installation procedure is complete:

```
     Installation of SNALU0 Vn.n completed at hh::mm

      VMSINSTALL procedure done at hh::mm
```

2.2 Postinstallation Considerations

The installation procedure for API installs SNALU0SHR.EXE, SNALU0MSG.EXE, and SNAGWAMSG.EXE files as shareable images. Section 2.2.1 lists the files added to the system.

To install API on other nodes that share a common system disk in a cluster environment, run the SYS$STARTUP:SNALU0$STARTUP.COM command procedure on each node. For nodes in a cluster environment that do not share a common system disk, the API must be installed on each node. Section 2.2.2 shows the command procedure for installing API as a shareable image.

Verification of the installation can be done either during installation through the VMSINSTAL utility or at any other time by running the SNALU0$IVP.COM command procedure found in the SYS$TEST directory. This command procedure verifies that the API has been installed correctly on your system. This command procedure does not verify connectivity between IBM and either the DECnet SNA Gateway-ST, DECnet SNA Gateway-CT, Digital SNA Domain Gateway-CT, Digital SNA Domain Gateway-ST, Digital SNA Peer Server or OpenVMS SNA. Section 2.2.3 shows the command procedure for running the IVP. The API Help file can be added to an editor's Help file. Section 2.2.4 shows the command procedure for adding API Help.

2.2.1 Files Created During Installation

During installation, the files listed below are placed on your system.

Note

API V2.0 or later does not provide the object library, SNA.OLB. API V2.4 or later does not provide the shareable image SNASHR.EXE. If SNASHR.EXE is on the system, it will not be removed. If you wish to use existing applications, you must link them with SNALU0SHR.EXE.

Table 2–1 File Locations After Installation

File Name	Location
SNAGWAMSG.EXE	(SYS$MESSAGE)
SNALIBDEF.ADA	(SYS$LIBRARY)
SNALIBDEF.BAS	(SYS$LIBRARY)
SNALIBDEF.R32	(SYS$LIBRARY)
SNALIBDEF.PAS	(SYS$LIBRARY)
SNALIBDEF.PEN	(SYS$LIBRARY)
SNALIBDEF.LIB	(SYS$LIBRARY)
SNALIBDEF.MAR	(SYS$LIBRARY)
SNALIBDEF.PLI	(SYS$LIBRARY)
SNALIBDEF.FOR	(SYS$LIBRARY)
SNALIBDEF.H	(SYS$LIBRARY)

(continued on next page)

Table 2–1 (Cont.) File Locations After Installation

File Name	Location
SNALU024.RELEASE_NOTES	(SYS$HELP)
SNALU0SHR.EXE	(SYS$SHARE)
SNALU0SHR.IIF	(SYS$LIBRARY)—OpenVMS Alpha only
SNALU0MSG.EXE	(SYS$MESSAGE)
SNALU0DEF.ADA	(SYS$LIBRARY)
SNALU0DEF.BAS	(SYS$LIBRARY)
SNALU0DEF.FOR	(SYS$LIBRARY)
SNALU0DEF.H	(SYS$LIBRARY)
SNALU0DEF.LIB	(SYS$LIBRARY)
SNALU0DEF.MAR	(SYS$LIBRARY)
SNALU0DEF.PAS	(SYS$LIBRARY)
SNALU0DEF.PAS_FOR_PEN	(SYS$LIBRARY)
SNALU0DEF.PLI	(SYS$LIBRARY)
SNALU0DEF.R32	(SYS$LIBRARY)
SNALU0$STARTUP.COM	(SYS$STARTUP)
SNALU0$IVP.COM	(SYS$TEST)

You can find HELP information for the API in the system help facility under the topic SNA_API.

2.2.2 Installing the API as a Shareable Image

The file SYS$STARTUP:SNALU0$STARTUP.COM contains the start-up command procedure for the API. To install the API as a shareable image, execute the command procedure as follows:

```
$ @SYS$STARTUP:SNALU0$STARTUP
```

Include the above command in your system start-up procedure to automatically install the API as a shareable image when you boot the system.

2.2.3 Running the Installation Verification Procedure

The Installation Verification Procedure (IVP) verifies the success of the installation. It checks that the new files were transferred to their proper locations and that files are not in the wrong location. If you encounter problems using the API, you should run the IVP as a first step in finding a solution. The IVP is designed to catch problems with missing files and old files left on your system. If a problem develops with the API, run the IVP first. To run the IVP after you install the product, invoke the command:

```
$ @SYS$TEST:SNALUO$IVP
```

If the IVP fails, correct the situation, and run the IVP again. Section 2.3.1 describes IVP failures in more detail.

2.2.4 Adding the SNA_API Help File to the Help File of an Editor

The API HELP information that is added to the HELPLIB file during installation can also be inserted into the HELP file of an editor for programmers who use editors to develop Digital SNA or OpenVMS SNA applications. The following commands perform this operation. These commands require system manager privileges.

```
$ LIBRARY/HELP/EXTRACT=SNAAPI/OUTPUT=SNAAPI SYS$HELP:HELPLIB
$ LIBRARY/HELP/INSERT SYS$HELP:xxxHELP SNAAPI
$ DELETE SNAAPI.HLP;*
```

where *xxx* is the name of your editor. For example, EDT or LSE.

2.2.5 License Management Facility in a VMScluster

Refer to the *OpenVMS License Management Utility Manual* for information on managing licenses in a VMScluster environment.

2.3 Error Recovery

If errors occur during the installation or when the IVP is running, VMSINSTAL displays error messages.

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

1. The operating system version is incorrect.
2. A prerequisite software version is incorrect.
3. Quotas necessary for successful installation are insufficient.
4. System parameter values for successful installation are insufficient.
5. The OpenVMS help library is currently in use.

6. The product is not properly licensed.
7. Your system has insufficient disk space.

For descriptions of the error messages generated by these conditions, see the OpenVMS documentation on system messages, recovery procedures, and OpenVMS software installation. If any of these conditions exist, you should take the appropriate action as described in the message. (You might need to change a system parameter or increase an authorized quota value.) These requirements are part of the installation requirements in Chapter 1 of this manual.

2.3.1 Installation Verification Procedure Messages

This section shows the different messages that the SNALU0$IVP command procedure displays:

Beginning IVP Installation

```
** Digital SNA Application Programming Interface for Digital Vn.n Installation Test **
```

Error Messages

```
%SNALU0$IVP-E-FILNOTFOU, the following files were not found:
```

This message displays a list of files not found. The list will include one, some, or all of the following files:

```
SYS$SHARE:SNALU0SHR.EXE
SYS$MESSAGE:SNALU0MSG.EXE
SYS$MESSAGE:SNAWAMSG.EXE
```

```
SNALU0$IVP-F-ASSEMFAI, failed to assemble API Vn.n test program
```

```
%SNALU0$IVP-E-LINKFAI, failed to link API Vn.n test program with
%SNALU0SHR.EXE
```

```
%SNALU0$IVP-E-RUNFAI, failed to run API Vn.n test program
```

Completing IVP Installation

```
** Digital SNA Application Programming Interface for OpenVMS Vn.n Test Successful **
```

or

```
** Digital SNA Application Programming Interface for OpenVMS Vn.n Test FAILED **
```

2.4 Sample Installation on an OpenVMS System with OPTIONS N

A sample of the entire installation procedure follows:

```
$ @SYS$UPDATE:VMSINSTAL SNALU0024 MUA0

     OpenVMS Alpha Software Product Installation Procedure V6.1

It is dd-mmm-yyyy at hh:mm
Enter a question mark (?) at any time for help.

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

Please mount the first volume of the set on MUA0:

The following products will be processed:

  SNALU0 V2.4

    Beginning installation of SNALU0 V2.4 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
Release Notes included with this kit are always copied to SYS$HELP.
Additional Release Notes Options:

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

* Select option [2]: 4
* Do you want to continue the installation? YES

%VMSINSTAL-I-RELMOVED, The products release notes have been successfully
moved to SYS$HELP.

     Product:          SNA-API
     Producer:         DEC
     Version:          V2.4
     Release Date:     dd-mmm-yyyy

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

        Installing all the symbol files for the supported languages
        requires XXXX blocks of permanent storage.

* Would you like all the symbol files installed on this system [Y]? NO

        Please enter Yes (Y) or No (N) if you want the symbol files
        installed for the following languages:
```

```
*       ADA (XXXX blocks) [N]? Y
*       BASIC (XX blocks) [N]? Y
*       BLISS (XX blocks) [N]? Y
*       CC (XXX blocks) [N]? Y
*       FORTRAN (XX blocks) [N]? Y
*       LIBRARY (XX blocks) [N]? Y
*       MACRO (XX blocks) [N]? Y
*       PASCAL (XXX blocks) [N]? Y
*       PLI (XXX blocks) [N]? Y

        You have chosen the following languages:
            (ADA,BASIC,BLISS,CC,FORTRAN,LIBRARY,MACRO,PASCAL,PLI)

* Is this OK [Y]?
%SNALU0-I-NOQUEST, No further questions will be asked

        The IVP for this product, SNALU0$IVP.COM, can be found in
        the SYS$TEST directory.

 To install the SNALU0SHR.EXE and SNALU0MSG.EXE images as
        shareable each time the system reboots, you must add the
        following line to your system startup procedure:

                $ @SYS$STARTUP:SNALU0$STARTUP

        On line release notes for this product can be found in the file,
                SYS$COMMON:[SYSHLP]SNALU0024.RELEASE_NOTES

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

** Digital SNA API for OpenVMS, V2.4 Installation Test **

.... Testing API V2.4 file locations
.... Testing API V2.4

** Digital SNA API for OpenVMS, V2.4 Test Successful **

         Installation of SNALU0 V2.4 completed at hh:mm

         VMSINSTAL procedure done at hh:mm
$
```

2.5 Sample Installation on an OpenVMS System without OPTIONS N

A sample of the entire installation procedure (without OPTIONS N) follows:

```
$ @SYS$UPDATE:VMSINSTAL SNALU0024 MUA0

     OpenVMS Alpha Software Product Installation Procedure V6.1

It is dd-mmm-yyyy at hh:mm
Enter a question mark (?) at any time for help.

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

Please mount the first volume of the set on MUA0:

* Are you ready? Yes
%MOUNT-I-MOUNTED, SNALU0 mounted on _MUA0:

The following products will be processed:

  SNALU0 V2.4

    Beginning installation of SNALU0 V2.4 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A...
%VMSINSTAL-I-RELMOVED, The products release notes have been successfully
moved to SYS$HELP.

     Product:           SNA-API
     Producer:          DEC
     Version:           V2.4
     Release Date:     dd-mmm-yyyy

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

        Installing all the symbol files for the supported languages
        requires 4138 blocks of permanent storage.

* Would you like all the symbol files installed on this system [Y]:
%SNALU0-I-NOQUEST, No further questions will be asked

        The IVP for this product, SNALU0$IVP.COM, can be found in
        the SYS$TEST directory.

        To install the SNALU0SHR.EXE and SNALU0MSG.EXE images as
        shareable each time the system reboots, you must add the
        following line to your system startup procedure

                $ @SYS$STARTUP:SNALU0$STARTUP

        On-line release notes for this product can be found in the file,
                SYS$COMMON:[SYSHLP]SNALU0024.RELEASE_NOTES

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

```
** Digital SNA API for OpenVMS, V2.4 Installation Test **

.... Testing API V2.4 file locations
.... Testing API V2.4

** Digital SNA API for OpenVMS, V2.4 Test Successful **
         Installation of SNALU0 V2.4 completed at hh:mm

         VMSINSTAL procedure done at hh:mm
$
```

3
Post-Installation Procedure

With the release of API Version 2.4, the PASCAL environment copies of the following files are no longer with the kit:

- SNALIBDEF
- SNALU0DEF
- SNALIBDEF.PEN
- SNALU0DEF.PEN

You can create your own copy of the environment files by executing the following OpenVMS commands. This only applies if PASCAL is installed with a valid PAK on the system where you want the environment to exist.

```
$ PASCAL SYS$LIBRARY:SNALIBDEF.PAS /ENVIRONMENT=SYS$LIBRARY:SNALIBDEF.PEN
$ PASCAL SYS$LIBRARY_SNALU0DEF.PAS_FOR_PEN /ENVIRONMENT=SYS$LIBRARY:SNALU0DEF.PEN
```

Note

You must build the environment files on your own system for the following reasons:

1. Linking the environment file created on an OpenVMS Version 6.1 or Version 6.2 system might not allow the creation of a good executable on and OpenVMS Version 7.0 system.
2. To avoid compilation differences based on the versions of compilers at each installtion, it is wiser to produce the environment file from the PASCAL compiler on the system where the API is installed.