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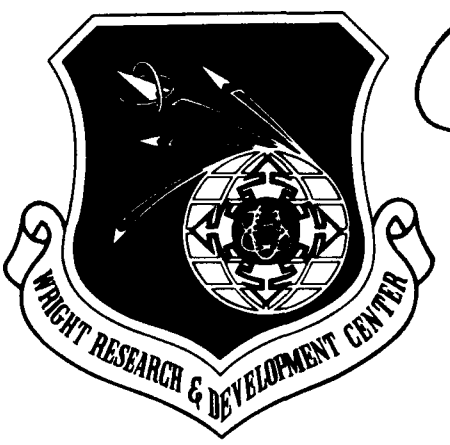

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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume III - Configuration Management
Part 17 - VAX Installation Guide for Source Code

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This technical report has been reviewed and is approved for publication.

This report is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations

25 July 91

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This document is the operator's manual (OM) for installing IISS source code onto any VAX computer containing the prerequisite system hardware and software.

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FOREWORD

This technical report covers work performed under Air Force Contract F33600-87-C-0464, DAPro Project. This contract is sponsored by the Manufacturing Technology Directorate, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Bruce A. Rasmussen, Branch Chief, Integration Technology Division, Manufacturing Technology Directorate, through Mr. David L. Judson, Project Manager. The Prime Contractor was Integration Technology Services, Software Programs Division, of the Control Data Corporation, Dayton, Ohio, under the direction of Mr. W. A. Osborne. The DAPro Project Manager for Control Data Corporation was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test, and demonstration of the Integrated Information Support System (IISS). The IISS technology work comprises enhancements to IISS software and the establishment and operation of IISS test bed hardware and communications for developers and users.

The following list names the Control Data Corporation subcontractors and their contributing activities:

SUBCONTRACTOR	ROLE
Control Data Corporation	Responsible for the overall Common Data Model design development and implementation, IISS integration and test, and technology transfer of IISS.
D. Appleton Company	Responsible for providing software information services for the Common Data Model and IDEF1X integration methodology.
ONTEK	Responsible for defining and testing a representative integrated system base in Artificial Intelligence techniques to establish fitness for use.
Simpact Corporation	Responsible for Communication development.
Structural Dynamics Research Corporation	Responsible for User Interfaces, Virtual Terminal Interface, and Network Transaction Manager design, development, implementation, and support.
Arizona State University	Responsible for test bed operations and support.

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SECTION 1

INTRODUCTION

This manual provides you the instructions necessary to install release 3.0 of the Integrated Information Support System (IISS) onto a VAX/VMS computer system.

The instructions include steps that allow you to install IISS Release 3.0 source program files. The instructions are written in an easy-to-follow procedure that begins at section 3, step 1.

Instructions for installing an IISS Release 3.0 source program code are contained in a separate installation guide, Publication No. OM 620324001.

Prior to beginning the IISS installation process, you will need a VAX/VMS computer with the hardware and software requirements listed in section 2. You, the installer, must have system privileges. In addition to system privileges, the system account you are using must have at least 78,000 blocks of page file quota. If your VAX computer meets the hardware requirements, using your system privileges, you can begin the IISS release 3.0 installation beginning at section 3, step 1.

Installation errors, what they mean, and how you are to respond are contained in section 4.

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Unannounced ☐
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Distribution /
Availability Codes
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SECTION 2

NECESSARY SYSTEM HARDWARE AND SOFTWARE

The following system hardware and software should be sufficient for the installation and build of IISS. It is possible that lower versions of some software may be sufficient.

Hardware

- VAX 11/780
- 4 Mb memory
- 95 Mb disk space for IISS
- 40 Mb disk space for ORACLE
- 1600 bpi tape drive
- 1 VT100 terminal
- 1 other terminal, any type
- Apple MacIntosh*

Software

- VMS V4.5
- ORACLE V5.1
- FORTRAN V4.6
- COBOL V3.4
- VAX C Compiler Version 2.3
- Light Speed 'C' compiler for MacIntosh*
- A file transfer protocol, such as MacTerminal, Kermit, or Red Ryder*, for sending converted MacPaint files to the VAX

* These items are required for the installation of the Electronic Documentation System (EDS) application program, the MPEPSF translator, that converts MacPaint files to an encapsulated Postscript file (EPSF).

SECTION 3

CREATION OF IISS USER ENVIRONMENT

This section contains the stepped-procedure that you will use to guide you easily and simply through the IISS Release 3.0 installation process.

Before beginning, you should have available the following information:

- The name of the disk device housing the disk where the new user account will reside.
- The user identification code, or UIC, for the account you will use to install IISS; this is a system account or one with system privileges.
- The UIC for the new user account (you may default this code).
- The name of the disk drive where Oracle 5.1 resides,
- The name of your installation's Oracle 5.1 executable.
- The name of the magnetic tape device upon which you mounted the IISS Release 3.0 Installation Tape;
- A global symbol established as VCC which will implement/execute the VAX-C compiler (i.e., VCC:=CC).
- The database instance identifier or symbol for the Oracle database environment.
- An account established with approximately 60,000 blocks of quota for the IISS Oracle environment files. (Note: Although, this does not have to be a new user account, it will be used to start the IISS instance of Oracle; ideally, a separate account should be used. See Appendix A for more information on the privileges required by this account.)

* Additional and complete information concerning central nodes, host links, and ports can be obtained from the NTM Operator's Manual, publication number OM 620342000.

Once you have acquired this information, you are ready to begin the IISS Release 3.0 Installation at step 1.

STEP 1 Mounting IISS Release 3.0 Tape

Mount the IISS Release 3.0 Installation Tape on a magnetic tape device connected to your VAX/VMS system. This device should have 2400' reel, 1600 bpi capability.

STEP 2 Tape Control Commands

At your terminal (note: because of the length of this activity and that it must be performed in interactive mode, your terminal should not be used for other functions or activities), log onto your system account, or an account having system privileges, and type the following tape control commands after each of your system's prompts:

(Note: we will use the > symbol to indicate the system prompt.)

```
> ALLOCATE device_name logical_name
> MOUNT/FOREIGN logical_name IISSSOU
> BACKUP logical_name:IISSSOUBLD23.BCK/SEL=[IISS.REL23.BUILD]-
    BLDSOUR.COM          *.*
```

where device_name and logical_name refer to the magnetic tape drive device name.

You will note the absence of a DISMOUNT command; this function will be performed for you by the command procedure you will execute at step 3.

STEP 3 IISS Release 3.0 Install Command

This step begins the actual installation of IISS Release 3.0 from the magnetic tape you mounted at step 1. Before executing the command procedure that performs this activity, several preparatory informational statements will be helpful:

- The install command must be executed in interactive mode (i.e., not batch mode);
- After the install command is executed, do not use the Ctrl-y/Ctrl-c function control keys;
- After executing the install command, a banner will be displayed announcing that the IISS Release 3.0 installation has begun, and then you will be prompted to enter the information you were asked to gather at the beginning of this section. After you have entered this information, the install procedure will display a message on your terminal that announces IISS Release 3.0 has been loaded from tape and the install activity has begun.

NOTE 3-1: The install procedure checks the validity of the information you have entered and if any discrepancies are encountered, an error message is displayed and you will be reprompted for the correct information. You will be informed of any error that prevents the process from continuing. All errors will be displayed on your terminal screen. A list of these error messages and their explanations is contained in section 4.

NOTE 3-2: The installation of IISS Release 3.0 source files will take approximately eight hours, based on your system utilization and your decision whether or not to compile/link the code, and any operator intervention requirements during this time other than monitoring for its activity, completion messages or unexpected interruptions.

Now we can begin the installation process. At your system prompt, type the following command:

```
> @BLDSOUR
```

NOTE 3-3: A carriage return is required to complete each command or prompt response.

During its process, BLDSOUR also displays the following banners:

"IISS Release 3.0 Software now being installed."

"Checking Layered Products."

"VAX FORTRAN ..... OK."

"VAX COBOL ..... OK."

"VAX C ..... OK."

NOTE 3-4: If the message "Missing layered product. Need VAX-C, Fortran, and COBOL" is displayed, one, two, or all three of the named language compilers could not be found on your system. This message is followed by "-- IISS installation aborted --". You will have to install the missing compilers and restart at step 3.

STEP 4 IISS Release 3.0 Disk Naming

The first BLDSOUR prompt requests the name of the disk where IISS 3.0 will reside:

"Please enter the name of the disk drive where the new account [IISS23] will reside, using the following format: DRIVE:"

>

Your response is to type in the disk name where the new IISS [IISS23] account will be created; for example, DUA2.

> DUA2: (the colon is optional)

NOTE 4-1: Based on your organization's device naming and other naming standards, your response may be different to this prompt and subsequent BLDSOUR prompts for device, directory, and file names.

STEP 5 Oracle 5.1 Directory Location

The next BLDSOUR prompt asks you to enter the disk and directory location of Oracle 5.1 and tells you what entry format to use:

"Where does ORACLE 5.1 reside? Format: DRIVE:[DIRECTORY]:"

>

Your response is to type the device name and directory location of your system's ORACLE 5.1 using the format provided; for example, DUA3:[ORACLE].

> DUA3:[ORACLE]

NOTE 5-1: If your response is invalid, BLDSOUR will prompt you again for this information after displaying the related message "Invalid Disk Specification" or "Invalid Directory Specification."

STEP 6 Oracle 5.1 Executable Name

The next prompt requires you to enter the name of your Oracle 5.1 executable.

"Enter the name of your installation's ORACLE Executable:
Format: NAME.EXE where NAME is the name of the executable."

>

Your response is to type your installation's Oracle 5.1 name using the format given by the prompt; for example, ORACLE5.EXE.

NOTE 6-1: If the Oracle 5.1 executable can not be located from the information you have entered in the two preceding steps, the error message "ERROR: ORACLE executable not found on disk:[directory] is displayed. You may re-enter the DRIVE:[DIRECTORY] or exit if installation should be aborted." You are then reprompted at step 5 for the Oracle 5.1 disk and directory. If you have the correct information, enter it now and continue; otherwise, enter "EXIT" to abort the installation.

STEP 7 Defining the Identification Code for IISS Installation Account

"Enter the UIC for the system account you are currently logged on to during this installation, default is [1,4]:"

>

If the default UIC is acceptable, simply type a carriage return; otherwise, type the applicable UIC and then a carriage return.

STEP 8 Assigning User Identification Code

The next BLDSOUR prompt asks you to enter the user identification code or UIC for the new IISS user account's disk file:

"Enter UIC for IISS account, the default is [110,20]:"

>

If the default UIC is acceptable, simply type carriage return; otherwise, type your own UIC and then carriage return.

STEP 9 Saving IISS Configuration File

The next prompt BLDSOUR display asks you to enter a yes or no response as to whether or not you want the configuration file to be saved:

"Save the configuration file, default is [YES]:"

>

If you want the configuration file saved, simply type carriage return; otherwise, type NO and then carriage return.

NOTE 9-1: This step defines the new account's user name, password, privileges, and parameters and values:

The new account user name is IISS23.

The password is IISS23.

The privileges assigned are TMPMBX, NETMBX, and GRPNAM.

These are the new account's configuration parameters and values:

```
PRCLM=32
ENQLM=300
TQELM=30
BYTLM=99000
WSDEF=200
WSQUOTA=768
WSEXTENT=2048
BIOLM=12
DIOLM=12
FILLM=120
PGFLQUOTA=79,000
```

STEP 10 Entering Input Tape Device Drive Name

The next prompt by BLDSOUR asks you to enter the magnetic tape device name upon which you have mounted the IISS Release 3.0 Installation Tape:

"Enter the input tape drive device:"

>

You respond by entering the tape device's name (this is the same name you used at step 2); for example, MTA0.

> MTA0

NOTE 10-1: If the tape device name you have entered is invalid, BLDSOUR will prompt again for the correct name after displaying this error message: "--Invalid Tape Drive--".

STEP 11 Installation Process Begins

At this step, after all of the required information prompted by BLDSOUR has been entered and verified, the IISS Release 3.0 software is loaded into the newly established IISS account and directory.

NOTE 11-1: In the event the IISS installation software is contained on more than one tape volume, you may be prompted to mount the additional tape volumes as required.

Once the loading from tape process completes, the following message is displayed:

"The IISS software has been uploaded from tape ... proceeding with installation."

The time of day is displayed next and the installation tape is dismounted and deallocated and this message is displayed: "Please archive tape until further notice - thank you."

The "further notice" aspect of this message, of course, is a determination made by your system manager.

The installation process will continue for approximately one or more hours. During this time activity messages will be displayed on your terminal screen - no response is required.

STEP 12 Identifying Database Instance

The next prompt asks you to enter an alphabetical character that identifies the database instance used for your environment.

"What instance of the database is used for your environment? Enter a one letter symbol unique to your installation.

(For example, R)"

>

You respond, using the example given, by typing that alphabetical character that you used to identify the Oracle environment's database instance. This "instance" should be unique and obtained prior to executing the installation process.

STEP 13 Naming ORACLE Database Environment

The next prompt asks you to enter the disk drive and directory name under which the new database environment is to be installed:

"Enter directory used for new database environment. DBA may want this to be a new account (drive:[directory]).

(For example, OR41:[CORAC42])"

>

You respond, using the example given, by typing the correct disk drive name and directory. Again, this information should be established prior to beginning the installation process.

NOTE 13-1: The install procedure checks if the directory you have specified exists; if not found, BLDIISS prompts you again after displaying this error message:
"Directory for ORACLE environment files not found, re-enter."

The execution of this step will update your ORAUSER and LOGIN command files with the information you have given it. It also will generate a file, called NEWINST.LOG, which will contain a log of the various activities performed at this step. This information is used whenever debugging is required; therefore, the log file should not be deleted. The execution of this step also sets up all ORACLE logicals by creating a command file, called ORADBS.COM, and then execute it. Next, it will create the ORACLE database file (DBS) and the Before Image (BI) file with VMS block sizes of 35,000 and 17,000, respectively.

Prior, however, to executing any of the functions we have discussed on the preceding page, the following message is displayed on your terminal screen:

"This procedure will create the following files:
dbs filename "(35,000 VMS blocks) (database)"
bi filename "(17,000 VMS blocks) (before image)"
"... and initialize them as database files."

A second message is displayed that requests from you whether or not the procedure should continue with this activity, based on your acceptance of the information contained in the first message:

"Should we proceed?"

>

After you have determined that the information displayed by the first of these two messages is in agreement with what you have entered in response to this step's prompts, you respond to the "Should we proceed?" message by typing "yes"; otherwise, typing "no" if you do not agree.

If your response to the "Should we proceed?" message is no, the following message will be displayed, and this step is repeated beginning with its first prompt:

"Restarting the procedure..."

If your response is yes, the database and Before Image files are created, the ORACLE database started, and the ORACLE Data Dictionary installed. When these activities are completed, the following message will be displayed:

"The initial database is now operational. You should change the SYS and SYSTEM passwords (CHANGE_ON_INSTALL and MANAGER, respectively) prior to inserting any sensitive data."

The following Oracle database accounts exist at this time:

Username	Password	Contents
SYS	CHANGE_ON_INSTALL	Oracle Dictionary
SYSTEM	MANAGER	Catalog views, CRT and help tables
SCOTT	TIGER	UFI and RPT demonstration tables
ADAMS	WOOD	- Used by UFI demonstration
JONES	STEEL	- Used by UFI demonstration
CLARK	CLOTH	- Used by UFI demonstration
BLAKE	PAPER	- Used by UFI demonstration
PERSONNEL	JOHN	IAP demonstration tables "

STEP 14 Creating the Common Data Model (CDM)

At this point, the following query will be displayed on your screen:

"DO YOU NEED CDM META DATA (Y/N)? :"

>

If you respond Y, the following query is displayed:

"WHAT USERNAME DO YOU WISH TO USE FOR THE NEW CDM (default is CDM)?:"

>

(We recommend the default be used.)

Once you have entered the new CDM username, the next query is displayed:

"DO YOU WISH TO CREATE THE TESTCASE DATABASES ALSO (Y/N)?:"

This question normally should be answered "no".

The next query displayed asks you how the CDM meta data is to be loaded; the query provides you with several displayed options and asks you to enter one, only:

"HOW DO YOU WANT THE CDM META DATA LOADED?

Enter 1 for a direct import of the CDM and CDM meta data.
Enter 2 to import with no data then load meta data through NDDL.
Enter 3 to create CDM tables with SQL statements then load meta data through NDDL
Enter 4 to create CDM tables only through an import file (no meta data).
Enter 5 to create CDM tables only through SQL statements (no meta data)."

"ENTER YOUR OPTION>>"

The suggested method is option 1 if you will need meta data; use option 4 if you do not need meta data.

The following explanations will help you to decide which option to select from this menu:

You will need CDM meta data only if you will be writing IISS applications against CDM views, i.e., ENTITY_NAME, DATA_BASE, and so on.

Any of the options selected from this menu will execute the import file called CDMMACRO23.BAK. This file loads the CDM macros that are used for precompiling.

Informational prompts are not provided once an option is selected; however, a log file, called CRTCDM.LOG, is created for review and debugging if any error occurs while running CRTCDM; therefore, this file should not be deleted.

Option 1: If you select this option, the CDMMACRO23 import statement will be executed that creates the CDM tables and then loads them with CDM meta data using an export file called CDMREL23.BAK. This option is recommended because if you need the meta data, it is the easiest and fastest method of loading it.

Option 2: If you select this option, the CDMMACRO23 import statement will be executed that only creates the CDM tables using the BLNKCDM23.BAK and then a file called CRTCDM.DAT which contains NDDL commands is executed; this creates the CDM meta data. You must assure that these NDDL commands executed successfully by examining the contents of the CRTCDM.OUT file after NDDL has been run. If any of these commands did not execute successfully, you must "comment out" the failed commands and run the CRTCDM.DAT file again. Note: the CRTCDM.DAT file's contents include a large amount of NDDL; consequently, it may require a long run time.

Option 3: If you select this option, a file of SQL commands, called CRTCDM.SQL, will be executed to create the CDM tables and associated indexes. Then the NDDL commands file, CRTCDM.DAT, will be executed to create the meta data (as in option 2).

Option 4: This option assumes that you do not need the meta data, if this is the case, this is the option you should use. If you select this option, the CDMMACRO23 import statement will be executed that creates the CDM tables only using the BLNKCDM23.BAK file; SQL command files are used to prepare the CDM.

Option 5: This option also assumes you do not need the meta data. If you select this option, a file of SQL commands will be executed that creates the CDM tables and associated indexes (as in option 3).

After you have selected and entered your option, you will be prompted to enter initial values for the VAX filename, IBM filename, and for the module name in the following manner:

"Enter initial value for VAX filename (i.e., A0001.TMP)"

>

NOTE 14-1: The VAX filename is used for code generated during the CDM precompilation. Do not enter a disk specification. The filename you enter must be five characters, that is, four numeric characters preceded by an alphabetical character, followed by a file extension; for example, A0001.TMP.

"Enter initial value for IBM filename (i.e., A0001.TMP)

>

NOTE 14-2: The IBM filename is used for code generated during the CDM precompilation. Do not enter a disk specification. The filename you enter must be five characters, that is, four numeric characters preceded by an alphabetical character, followed by a file extension; for example, P0001.TMP. The "P" is used in this example as a suggested method of establishing a gap between the VAX and IBM files in the directory.

"Enter initial value for MODULE NAME (i.e., A0001.TMP)"

>

NOTE 14-3: The module name is the program name used for code generated during the CDM precompilation. The filename you enter must be five characters, that is, four numeric characters preceded by an alphabetical character, followed by a file extension; for example, A0001.TMP.

SECTION 4

COMPILING/BUILDING IISS RELEASE 3.0 SOURCE CODE

The source code installation requires the installer to compile/build IISS using command procedures provided with the release. The following stepped procedure provides the method by which these command procedures can be executed after logging on to the account established at step 3 of Section 3 (IISS23, password currently is the same as the username IIS23).

STEP 1 Submit batch compile of IISS Source Code

Now you can execute the command procedure that actually places all include files in the text library, compile source code, replace the objects in the relevant object libraries, and link the executable images. You do this by entering the following commands:

```
>SET DEFAULT CMDIR:[BUILD]
>SUBMIT/KEEP/NOTIFY/NOPRINTER BUILD.COM
```

This action submits the command procedure inn batch mode creating a log file in the [IISS23] directory. This batch job may take eight or more hours depending on your system's load.

After the batch job completes, you should print the log file that is created and examine it for errors. Compile errors are not expected; however, if one should occur, notify the IISS contact person immediately. On the other hand, undefined symbol errors while linking are expected and will be resolved at step 2.

STEP 2 Building the IISS Subsystems

Because of the complexity of compiling the IISS source code, the following steps must be performed manually using the command procedures and the following list of affected IISS subsystems and IISS publications:

Required IISS User Manuals

Subsystem Tool	Pub. No.	Title
CDM NDDL	UM 620341401	Define/Construct the NDDL
CDM Reports	UM 620341402	CDM Reports and Application Build User's Manual
CDM DDL to NDDL Translators	UM 620341411	DDL to NDDL Translator Build Instructions
CDM Impact Analysis	UM 620341421	Impact Analysis Build Instructions
CDM Compare Utility	UM 620341431	CDM Compare Utility Build Instructions

STEP 3 UI Forms Creation

You must now create the forms used by the User Interface System of IISS. First, you must redefine a logical used by the forms compiler.

```
> DEFINE IISSULIB CMDIR:[FD]
> SET DEFAULT CMDIR:[FD]
```

Now use the stand-alone version of FLAN to create all of the .FD files from the .FDL files. You must run the stand-alone version of FLAN for every .FDL file in the CMDIR:[FD] directory using the following command:

```
> RUN CMDIR:[RUNAREA]FLANSA
```

You will then be prompted:

```
FILE:
```

Enter the name of the FDL file. After doing the above for every .FDL file in the CMDIR:[FD] directory you must redefine the logical to its previous state by using the following syntax:

```
>DEFINE IISSULIB CMDIR:[RUNAREA]
```

The Forms Editor User Manual, Publication Number UM 620344400, should be referenced if additional information is desired.

STEP 4 IISS System Generation

Prior to running IISS, you must define certain parameters to the Network Transaction Manager (NTM) for using the MPUGEN executable. The NTM Operator's Manual, Publication Number OM 620342000, should be referenced if additional information is desired.

SECTION 5

IISS RELEASE 3.0 INSTALLATION ERROR MESSAGES

The IISS Release 3.0 installation error messages are essentially self-explanatory; however, both non-fatal and fatal errors are listed and explained here for your convenience.

Non-Fatal Error Messages

"--Invalid Tape Drive--"

Meaning: The name you have entered in response to a request to enter the name of the tape drive upon which you had mounted the IISS Release 3.0 Installation Tape was typed incorrectly.

Action: The request to enter the tape name is reprompted.

"Directory for ORACLE environment files not found, re-enter."

Meaning: The disk drive name and directory used for the new Oracle database environment was incorrectly entered at step 13.

Action: You are reprompted to enter the correct disk drive name and directory.

Fatal Error Messages

NOTE: The recommended actions to be taken in response to each fatal error message include a problem resolution followed by a retry; however, once you have determined that a problem has been resolved correctedly but the same error message occurs, contact your IISS support personal for assistance.

"ERROR: ORACLE executable not found on disk:[directory]. You may re-enter the DRIVE:[DIRECTORY] or exit if installation should be aborted."

Action: You enter "EXIT" to abort the installation and get the correct location of the Oracle executable, or you may need only to re-enter the correct information required.

"Missing layered product. Need VAX-C, Fortran, and COBOL."

"-- IISS installation aborted --"

Meaning: The existence on your system of either the VAX-C, Fortran, or COBOL compilers could not be determined.

Action: You must install the missing products onto your system and restart the installation process at section 3, step 3.

"Insufficient privileges to run this procedure.
Requires SYSPRV, SYSNAM privileges."

"-- IISS installation aborted --"

Meaning: The system privileges necessary to establish an IISS Release 3.0 new user account are inadequate to complete the installation process. The required privileges are stated in the error message.

Action: You must log on the system using an account that has the required privileges stated in the error message and restart the installation process at section 3, step 1. You must restart at step 1 because the tape will have to be dismounted and deallocated (refer to your VAX/VMS Backup Utility Reference Manual).

APPENDIX A

ORACLE ACCOUNT PROCESS PRIVILEGES AND QUOTA

The account to be used for the Oracle environment files, whether new or already established, must have at least the following process privileges and quota:

Process Privileges:

GRPNAM - may insert in group logical name table
GROUP - may affect other processes in same group
TMPMBX - may create temporary mailbox
NETMBX - may create network device

Quota Needed for IISS:

60,000 blocks authorized
1,000 blocks permitted overdraft

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