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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 32 - CDM Subsystem Database Build Instruction Manual

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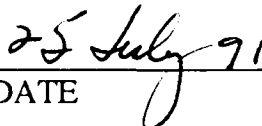
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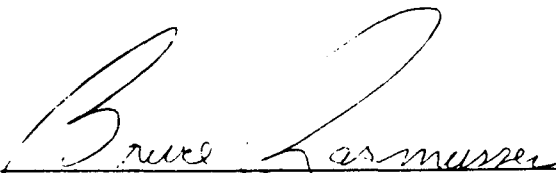


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FOREWORD

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:

| <u>SUBCONTRACTOR</u> | <u>ROLE</u> |
|--|--|
| 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 document will provide instructions for the building of all databases required by the CDM subsystem of IISS. This includes the Common Data Model database, the database used by the Common Data Model Processors and all test databases required during the integration and testing of the CDM.

Section 2 provides instructions for building the CDM database and ORACLE test databases.

Section 3 provides instructions for building DB2 test databases. The configuration supported in Release 3.0 does not include an IBM. Therefore, the procedures referenced in Section 3 should not be performed. The section is retained here for possible future use.

Section 4 provides instructions for building VAX-11 test databases.

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SECTION 2

CDM Database Build

This section will describe the procedures necessary for building the CDM database. Although the entire procedure is contained in a VAX/VMS command procedure, each step of the procedure will be explained.

To run the procedure to create the CDM database you must have an ORACLE database environment account with 60,000 blocks of disk quota, as well as 2,000 blocks of quota on the disk which contains the original installation of ORACLE version 5.1.22. You must also know the answers to the following prompts:

- 1) What username do you wish to use for the new CDM (default is CDM)

It is suggested that the default be used.

- 2) What password do you wish to use for the new CDM (default is CDM)

It is suggested that the default be used.

- 3) Do you wish to create the testcase databases also (Y/N)?

This question is intended for the IISS integration and test team, and should be answered N for anyone besides this group.

- 4) How do you want the CDM created ?

Enter 1 for a direct import of the CDM and CDM meta data

Enter 2 to create CDM tables only through an import file (no meta data)

Enter Q to quit

Enter your option>>

- 5) Enter initial value for VAX filename (ie. A0001.TMP)

This is the filename that will be used for generated code during CDM precompilation. Do not enter a disk specification. The filename must be in the form of one letter, 4 numbers, and a file extension.

- 6) Enter initial value for IBM filename (ie. A0001.TMP)

This is the filename that will be used for generated code during CDM precompilation. Do not enter a disk specification. The filename must be in the form of one letter, 4 numbers, and a file extension. It is suggested that the VAX filename and the

IBM filename begin with letters far apart in the alphabet. For example, a Vax filename of A0001.tmp and IBM filename of P, Q, or R.

7) Enter initial value for MODULE NAME (ie. A0001)

This is the program name that will be used for generated code during CDM precompilation.

To execute the procedure to create the CDM database, type the following:

```
@CDMDIR:[CDMA]CRTCDM
```

CRTCDM will ask questions one and two from above, and create the appropriate Oracle username. Then it will prompt for questions three and four. After question four is answered, CRTCDM will execute various DCL and Oracle commands depending on the option chosen.

There are three options for creating the CDM, and before each one is executed, what has been chosen is verified. Next, the user is asked to verify his response. If the answer is correct, processing continues. If not, the user is prompted again for question four.

If option one is chosen, CRTCDM will execute an import statement to create the CDM tables and load the tables with CDM meta data using the export file called CDMR30.BAK. It will execute another import statement to create the CDM macros used for CDM precompilation using the export file CDMMC30.BAK. During these imports, 73 of the following types of messages will appear:

```
". . Importing table "ACKEYWORD"          147 Rows  
imported"
```

Then it will execute SQL commands to do some cleanup, using ALTSPC.UFI. The following message will appear:

```
"Space altered"
```

Next, it will execute CDMCLN.COM, asking questions nine through eleven to do further cleanup. Some of the messages that will appear are:

```
"1 records deleted"  
"1 records deleted"  
"2 records deleted"  
"0 records deleted"  
"0 records deleted"  
"0 records deleted"
```


"0 records deleted"
"1 record updated"
"1 record updated"
"1 record updated"
"commit complete"

Then it will execute SQL commands to create an Oracle index on the macrocode table, using CDMIND.UFI. There will be the following messages:

"Index created"

After option one is complete the following message will appear:

"CDM build complete with CDM meta data..."

If option two is chosen, CRTCDM will execute an import statement to create the CDM tables only using CDM30.BAK and then execute another import statement for the CDM macros using CDMMC30.BAK. Then it will execute ALTSPC.UFI as in option one.

Next, option two will execute CLNBLK.COM to do some cleanup. It will ask questions nine through eleven, and the following message displays many times:

"1 record created."
"commit complete"

Then CDMIND will be executed as in option one, and the following message will appear:

"CDM build complete with CDM no meta data..."

All options will execute the import file CDMMC30.BAK to load CDM macros for precompiling, after which the following message will appear:

". . Importing table "MACRO_CODE" 14784 Rows
imported"

After an option has completed, if question three was answered yes, CRTCDM will create three new Oracle usernames: TEAM, PLAYER, and UNIV1 for use by release testcases. Then three import files will be executed (PLAY23.BAK, TEAM23.BAK, and UNIV123.BAK), and the following message will appear:

Testcase databases build complete with following Oracle databases:

TEAM
PLAYER
UNIV1

The following is a list of files that must be checked out of IISS configuration management or provided with the IISS tape to build the CDM:

NEWINST.COM
CRTCDM.COM
CDMR30.BAK
CDMMC30.BAK
ALTSPC.UFI
CDMCLN.COM
CDMIND.UFI
CLNBLK.COM
CDMSQL.UFI
ORAUSER.COM
PLAY23.BAK (if testcase databases needed)
TEAM23.BAK (if testcase databases needed)
UNIV123.BAK (if testcase databases needed)

SECTION 3

DB2 Database Build

This section describes the procedures and steps necessary for building the DB2 databases used in the integration and testing of the CDM subsystem for IISS. The DB2 database build will use the utilities of the Query Management Facility (QMF) residing on the IBM. The IBM account used to build the database must have SYSADM DB2 authorizations and privileges.

Step 1 - QMF Access

To use QMF, follow the instructions below:

- 1) At ISPF main menu, type Q. You will then be in the QMF HOME PANEL.
- 2) Cursor is now at command line (which is located at the bottom of the screen). Press PF6 (or keypad #9) for "QUERY".
- 3) You are now on the SQL QUERY screen. CURSOR is at command line at bottom. Hit return to position cursor at top of screen.
- 4) Type in the SQL commands listed in Step 2. (Note, do not include a semi-colon at end of statement.) Press PF2 to execute the statement. Data will be displayed on the screen if a select statement was issued.

Step 2 - Database Build

Enter the following commands on the QMF SQL Query screen:

```
CREATE DATABASE CDCSG
```

```
CREATE TABLE CDCSG.TEAM (TEAM_NO INTEGER NOT NULL, PLAYER_NAME  
CHAR(30) NOT NULL) IN DATABASE CDCSG
```

```
CREATE DATABASE CDCJA
```

```
CREATE TABLE CDCJA.PLAYER (TEAM NO INTEGER NOT NULL, PLAYER NO  
INTEGER NOT NULL, LNAME CHAR(10), FNAME CHAR(10), PLAYER_SALARY  
DECIMAL(15,6) ) IN DATABASE CDCJA
```

```
CREATE TABLE CDCJA.GAME (GAME_NO INTEGER NOT NULL, GAME_SITE  
CHAR(30), GAME_YARDS_RUN DECIMAL (7,2) ) IN DATABASE CDCJA
```

```
CREATE TABLE CDCJA GAME_DAY (TEAM_NO INTEGER NOT NULL, PLAYER_NO  
INTEGER NOT NULL, GAME_NO INTEGER NOT NULL) IN DATABASE CDCJA
```

After each create command, execute the statement by hitting PF2.

Then hit PF6 and the return key in order to reposition cursor.

Use the PF3 key to back you out of session. Hit PF3 once to take you to the QMF panel, then a second time to return to the main menu.

SECTION 4

VAX-11 Database Build

This section describes the procedures necessary for building the VAX-11 database used in the integration and testing of the CDM Subsystem for IISS. It will provide environment suggestions and outline the steps including DCL commands, VAX-11 commands, and files necessary to build the test database.

Environment Suggestions

Set up a separate sub-directory under the I & T account to be used only for VAX-11 databases and related files. The following two logicals must be set up in the I & T login:

| <u>Logical name</u> | <u>Equivalent name</u> |
|---------------------|--|
| CDD\$DEFAULT | = "CDD\$TOP.IISS" |
| DBM\$RUJ | = sub-directory name (including disk) created above |

Step 1

Set up the default directory under the Common Data Dictionary (CDD). This is the area in VAX-11 where all data dictionary information will reside. You must use the Dictionary Management Utility (DMU) to set up your default CDD. Enter DMU by:

```
$ RUN SYS$SYSTEM:DMU
DMU> CREATE CDD$TOP.IISS
DMU> EXIT
$
```

Step 2

Check out from CM the following files that are required for building the testcase database and loading data into the tables. Make sure these files have "adequate" Read/Write/Execute/Delete Privileges:

```
UNIV.DDL
UNIV.LFL
UNIV1.INP
UNIV1.LSL
UNIV2.INP
UNIV2.LSL
UNIV3.INP
UNIV3.LSL
UNIV4.INP
UNIV4.LSL
```

Step 3

Compile the UNIV.DDL file, placing the the database record descriptions and schemas into the CDD:

```
$ DDL/COMPILE UNIV.DDL
```

You will receive the following three messages:

```
Default subschema generated for UNIV schema  
Default storage schema generated for UNIV schema  
Default security schema generated for UNIV schema
```

Any other error messages should be reported to CDC.

Step 4

Create the database:

```
$ DBO/CREATE UNIV
```

This will create the file UNIV.ROO

Step 5

Load data into the database tables:

```
$ DBO/LOAD/FORMAT=UNIV.LFL/SEQUENCE=UNIV1.LSL/FILE=UNIV1.INP/LOG  
UNIV  
$ DBO/LOAD/FORMAT=UNIV.LFL/SEQUENCE=UNIV2.LSL/FILE=UNIV2.INP/LOG  
UNIV  
$ DBO/LOAD/FORMAT=UNIV.LFL/SEQUENCE=UNIV3.LSL/FILE=UNIV3.INP/LOG  
UNIV  
$ DBO/LOAD/FORMAT=UNIV.LFL/SEQUENCE=UNIV4.LSL/FILE=UNIV4.INP/LOG  
UNIV
```

After each of these commands you will get several messages referring to opening and closing of files. The last line of this message should say, "Read x, committed x RECORD-NAME records" where x is the number of records (make sure the number read equals the number committed) and RECORD-NAME is the following:

```
STUDENT      - for the first command  
INSTRUCTORS  - for the second command  
COURSES      - for the third command  
ENROLLMENT   - for the fourth command
```

The database UNIV is now created with four tables, including data.