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Volume V
Part 2



INTEGRATED INFORMATION
SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 2 - CDMP Test Case Report

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



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<p>This document summarizes the set of test cases of the IISS Common Data Model (CDM) subsystem which make up the unit test plan.</p>			
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PREFACE

This test case report covers the work performed under Air Force Contract F33615-80-C-5155 (ICAM Project 6201). This contract is sponsored by the Materials Laboratory, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Gerald C. Shumaker, ICAM Program Manager, Manufacturing Technology Division, through Project Manager, Mr. David Judson. The Prime Contractor was Production Resources Consulting of the General Electric Company, Schenectady, New York, under the direction of Mr. Alan Rubenstein. The General Electric Project Manager was Mr. Myron Hurlbut of Industrial Automation Systems Department, Albany, New York.

Certain work aimed at improving Test Bed Technology has been performed by other contracts with Project 6201 performing integrating functions. This work consisted of enhancements to Test Bed software and establishment and operation of Test Bed hardware and communications for developers and other users. Documentation relating to the Test Bed from all of these contractors and projects have been integrated under Project 6201 for publication and treatment as an integrated set of documents. The particular contributors to each document are noted on the Report Documentation Page (DD1473). A listing and description of the entire project documentation system and how they are related is contained in document FTR620100001, Project Overview.

The subcontractors and their contributing activities were as follows:

TASK 4.2

<u>Subcontractors</u>	<u>Role</u>
Boeing Military Aircraft Company (BMAC)	Reviewer
D. Appleton Company (DACOM)	Responsible for IDEF support, state-of-the-art literature search
General Dynamics/ Ft. Worth	Responsible for factory view function and information models

<u>Subcontractors</u>	<u>Role</u>
Illinois Institute of Technology	Responsible for factory view function research (IITRI) and information models of small and medium-size business
North American Rockwell	Reviewer
Northrop Corporation	Responsible for factory view function and information models
Pritsker and Associates	Responsible for IDEF2 support
SofTech	Responsible for IDEFO support

TASKS 4.3 - 4.9 (TEST BED)

<u>Subcontractors</u>	<u>Role</u>
Boeing Military Aircraft Company (BMAC)	Responsible for consultation on applications of the technology and on IBM computer technology.
Computer Technology Associates (CTA)	Assisted in the areas of communications systems, system design and integration methodology, and design of the Network Transaction Manager.
Control Data Corporation (CDC)	Responsible for the Common Data Model (CDM) implementation and part of the CDM design (shared with DACOM).
D. Appleton Company (DACOM)	Responsible for the overall CDM Subsystem design integration and test plan, as well as part of the design of the CDM (shared with CDC). DACOM also developed the Integration Methodology and did the schema mappings for the Application Subsystems.

The Integrated Information Support System is a test computing environment used to investigate and demonstrate and test the concepts of information management and information integration in the contexts of Aerospace Manufacturing. Specifically, IIS addresses the problems of integration of data resident on heterogeneous databases supported by heterogeneous computers, interconnected via a Local Area Network. A common Data Model is maintained and provides the mechanism required to integrate the data.

→ to 1473

Subcontractors

Role

Digital Equipment Corporation (DEC)

Consulting and support of the performance testing and on DEC software and computer systems operation.

McDonnell Douglas Automation Company (McAuto)

Responsible for the support and enhancements to the Network Transaction Manager Subsystem during 1984/1985 period.

On-Line Software International (OSI)

Responsible for programming the Communications Subsystem on the IBM and for consulting on the IBM.

Rath and Strong Systems Products (RSSP) (In 1985 became McCormack & Dodge)

Responsible for assistance in the implementation and use of the MRP II package (PIOS) that they supplied.

SofTech, Inc.

Responsible for the design and implementation of the Network Transaction Manager (NTM) in 1981/1984 period.

Software Performance Engineering (SPE)

Responsible for directing the work on performance evaluation and analysis.

Structural Dynamics Research Corporation (SDRC)

Responsible for the User Interface and Virtual Terminal Interface Subsystems.

Prime contractors under other projects who have contributed to Test Bed Technology, their contributing activities and responsible projects are as follows:

<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Boeing Military Aircraft Company (BMAC)	1701, 2201, 2202	Enhancements for IBM node use. Technology Transfer to Integrated Sheet Metal Center (ISMC)

<u>Contractors</u>	<u>ICAM Project</u>	<u>Contributing Activities</u>
Control Data Corporation (CDC)	1502, 1701	IISS enhancements to Common Data Model Processor (CDMP)
D. Appleton Company (DACOM)	1502	IISS enhancements to Integration Methodology
General Electric	1502	Operation of the Test Bed and communications equipment.
Hughes Aircraft Company (HAC)	1701	Test Bed enhancements
Structural Dynamics Research Corporation (SDRC)	1502, 1701, 1703	IISS enhancements to User Interface/Virtual Terminal Interface (UI/VTI)
Systran	1502	Test Bed enhancements. Operation of Test Bed.

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SECTION 1

INTRODUCTION

This manual contains forty test cases that were used in testing the new functionality of the CDMP for Release 2.0 of IISS. The IISS Test Bed Integration Procedure figure found in the Quality Assurance Plan was used as a guide for documenting all test cases.

SECTION 2

TERMS AND ABBREVIATIONS

Attribute Use Class: (AUC)

Conceptual Schema: (CS)

Common Data Model Processor: (CDMP)

Common Data Model: (CDM) Describes common data application process formats, form definitions, etc. of the IISS and includes conceptual schema, external, internal schemas, and schema transformation operators.

Data Field: (DF) An element of data in the external schema. It is by this name that an NDML programmer reference data.

Database Management System: (DBMS)

Distributed Request Supervisor: (DRS) This IISS CDM subsystem configuration item controls the execution of distributed NDML queries and non distributed updates.

Domain: A logical definition of legal attribute class values.

Domain Constraint: Predicate that applies to a single domain.

External Schema: (ES)

Forms: Structured views which may be imposed on windows or other forms. A form is composed of fields where each field is a form, item, or window.

Forms Processor: (FP) A set of callable execution time routines available to an application program for form processing.

Internal Schema: (IS)

Integrated Information Support System: (IISS) A test computing environment used to investigate, demonstrate and test the concepts of information management and information

integration in the context of Aerospace Manufacturing. The IISS addresses the problems of integration of data resident on heterogeneous databases supported by heterogeneous computers interconnected via a local Area Network.

Mapping: The correspondence of independent objects in two schemas: ES to CS or CS to IS.

Network Transaction Manager: (NTM) Performs the coordination, communication and housekeeping functions required to integrate the application processes and system services resident on the various hosts into a cohesive system.

Neutral Data Manipulation Language: (NDML) A language developed by the IISS project to provide uniform access to common data, regardless of database manager or distribution criteria. It provides distributed retrieved and single node updates.

ORACLE: Relational DBMS based on the SQL (Structured Query Language, a product of ORACLE Corp, Menlo Park, CA). The CDM is an ORACLE database.

Parcel: A sequential file containing sections source code of the input application program.

Request Processor: (RP) A COBOL program that will satisfy a retrieval or update NDML subtransaction against a particular Database Management System.

User Interface: (UI) Controls the user's terminal and interfaces with the rest of the system.

Virtual Terminal Interface: (VTI) Performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by UI software which constitutes the Virtual Terminal Definition. Specific terminals are then mapped against the Virtual Terminal software by specific software modules written for each type of real terminal supported.

SECTION 3
TEST CASE REPORTS

Precompiler Test Cases

<u>Test Case</u>	<u>Type of Test Case</u>	<u>Type of Database</u>	<u>Phase of the GDMF</u>
GDTS1	COBOL	Relational	Precompilation/ Runtime
CDTS2	COBOL	Relational	Precompilation/ Runtime
*CDTS7	FORTRAN	Relational	Precompilation/ Runtime
CDTA1 CDTA2 CDTA3	COBOL	CODASYL	Precompilation
CDTB1 CDTB2 CDTB3	COBOL	CODASYL	Precompilation
CDTC1 CDTC2 CDTC3	COBOL	CODASYL	Precompilation
CDTD1 CDTD2 CDTD3	COBOL	CODASYL	Precompilation
CDTE4	COBOL	CODASYL	Precompilation
CDTT1 CDTT2 CDTT3	COBOL	TOTAL	Precompilation
CDTT4 CDTT5 CDTT6	COBOL	TOTAL	Precompilation
CDMT00	COBOL	CODASYL Relational	Precompilation/ Runtime

* Not In Release 2.0

NDDL Test Cases

<u>TEST CASE</u>	<u>NDDL COMMANDS</u>
NDDL1	Create Model Create Entity Create Attribute Alter Entity Create Relation
NDDL2	Define Database Define Record Define Set
NDDL3	Drop Field Drop Record Drop Set Drop Database
NDDL5	Drop Field Drop Record Drop Set Drop Database
NDDL6	Create Model Create Entity Create Attribute Create Relation Alter Entity Describe Create Alias
NDDL7	Alter Model Copy Description
NDDL8	Alter Model Copy Attribute..On File
NDDL9	Check Model
NDDL10	Compare Model
NDDL11	Alter Model Copy Entity...With Relation

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TEST CASE

NDDL12

NDDL13

NDDL14

NDDL15

NDDL16

NDDL COMMANDS

Alter Model
Copy Entity...With
Structure

Alter Model
Combine Entity

Copy Model

Merge Model

Drop Model

Test Case Reports by Number

TEST NO.: CDTS1 - Precompilation

DATE: February 20, 1984

1.1 Test Objective

This test case will precompile an Application Process containing a single NDML query request. The query will request data from the ORACLE CDM database. The precompilation of the application will require the Conceptual/External Transform and the ORACLE Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is SNGTEST.PRC. The Precompiler input directives for this Application Process are found in file CDTS1.DAT.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$)type:

\$ @ NDML

NDML PRECOMPILER

ENTER FILE CONTAINING PRECOMPILER DIRECTIVES ,CDTS1
args: <cr>

>>>NDML PRECOMPILATION FINISHED<<<
RESULTS OF PRECOMPILATION CAN BE
FOUND ON FILE CDTS1.OUT

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM** - Message and queue server capabilities.
- CDMP** - IISS Precompiler, Conceptual/External Transform Generator, ORACLE Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDTS1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one ORACLE Request Processor subprogram and one ORACLE Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTS1 - Runtime

DATE: February 20, 1984

1.1 Test Objective

This test case will execute a precompiled COBOL Application Process containing a single NDML query against the GDM. The query will return a list of all attribute use class names for the entity class entered as the input data. This query will be repeated for each entity class name entered until a response of "EXIT" is entered at the input prompt.

1.2 Test Data Required

The test case requires the executables for the precompiled Application Process, the generated ORACLE Request Processors and the Conceptual/External Transformer.

1.3 Test Tools and Computer Time

The NTM and UIMS must be available and at the FUNCTION screen for the UIMS, the Application Process name must be entered for the function (C2CDTS1ZZZ). All user inputs will be requested from the NTM operator's console and all query results will be displayed on the NTM operator's console. In order to receive these prompts and results, the following VAX/VMS ASSIGN statement must be issued for the operator's console:

```
$ ASSIGN/GROUP _TTnn: SYS$COMMAND
```

where nn is the process number for the current terminal determined by issuing the VAX/VMS SHOW PROCESS command.

1.4 Required System Configuration

The configuration items required for the test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, Generated Application Processes, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this test case will be a list of all attribute use class names for the entity class name entered at the input prompt (see attached example). When "EXIT" is entered at the input prompt, the Application Process will terminate and the FUNCTION screen of the UIMS will be returned to the user's terminal.

CDTS1 - Runtime

ENTER ENTITY CLASS NAME
>SOFTWARE_MODULE

SOFTWARE_MODULE	MOD_ID
SOFTWARE_MODULE	LANG_NAME
SOFTWARE_MODULE	MOD_TITLE
SOFTWARE_MODULE	MOD_ABSTRACT
SOFTWARE_MODULE	LATEST_REV_DATE
SOFTWARE_MODULE	LATEST_USAGE_DATE
SOFTWARE_MODULE	STATUS_IND

ENTER ENTITY CLASS NAME
>EXIT

TEST NO.: CDTS2 - Precompilation

DATE: February 20, 1984

1.1 Test Objective

This test case will precompile an Application Process containing a nested NDML query request. It will test nesting logic of the IISS precompiler. The queries will request data from the ORACLE CDM database. The precompilation of the Application Process will require the Conceptual/External Transformer and the ORACLE Request Processor Generator.

1.2 Test Data Required

The test case requires an Application Process with a nested NDML request. The source file for this Application Process is NSTTEST.PRC. The precompiler input directives for this Application Process are found in file CDTS2.DAT.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES ,CDTS2  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTS2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, ORACLE Request Process Generator, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDTS2.OUT. It will consist of:

- a modified Application Process
- two Conceptual/External Transformer Subprograms
- two ORACLE Request Processor Subprogram and
- one ORACLE Request Processor Main program

All of the above programs will compile error free.

TEST NO.: CDTS2-Runtime

DATE: June 1, 1985

1.1 Test Objective

This test case will execute a precompiled COBOL Application Process containing a nested NDML query against the CDM. For an entity class entered as input data, the query will return a list of all relations where the entity is the dependent entity. Then, for each relation name returned it will return a list of attributes inherited via that relation. This query will be repeated for each entity class name entered until a response of "EXIT" is entered at the input prompt.

1.2 Test Data Required

The test case requires the executables for the Precompiled Application process, the generated ORACLE Request Processors and the Conceptual/External Transformers.

1.3 Test Tools and Computer Time

The NTM and UIMS must be available and at the FUNCTION screen for the UIMS, the Application Process name must be entered for the function (C2CDTS2ZZZ). All user inputs will be requested from the NTM operator's console and all query results will be displayed on the NTM operator's console. In order to receive these prompts and results, the following VAX/VMS ASSIGN statement must be issued for the operator's console:

```
$ ASSIGN/GROUP _TTnn: SYS$COMMAND
```

where nn is the process number for the current terminal determined by issuing the VAX/UMS SHOW PROCESS command.

1.4 Required System Configuration

The configuration items required for the test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, Generated Application Processes, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this test case will be a list of relation names and for each relation name all the attributes that were inherited via that relation for the entity class name entered at the input prompt (see attached example). When "EXIT" is entered at the input prompt, the Application Process will terminate and the FUNCTION screen of the UIMS will be returned to the user's terminal.

CDTS2 - Runtime

ENTER ENTITY CLASS NAME
RECORD SET
IS RELATED VIA:
RELATION NAME : MAPS_TO_CONCEPTUAL_SCHEMA_VIA
RELATION NUMBER : 000137

ATTRIBUTE INHERITED VIA THIS RELATION:
RELATION NUMBER : 000137
TAG NAME : DB_ID

ATTRIBUTE INHERITED VIA THIS RELATION:
RELATION NUMBER : 000137
TAG NAME : SET_ID

IS RELATED VIA:
RELATION NAME : HAS
RELATION NUMBER : 000138

ATTRIBUTE INHERITED VIA THIS RELATION:
RELATION NUMBER : 000138
TAG NAME : DB_ID

ATTRIBUTE INHERITED VIA THIS RELATION:
RELATION NUMBER : 000138
TAG NAME : SET_ID

IS RELATED VIA:
RELATION NAME : MAY_HAVE_MANY_TYPES_OF
RELATION NUMBER : 000199

ATTRIBUTE INHERITED VIA THIS RELATION:
RELATION NUMBER : 000199
TAG NAME : DB_ID

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ATTRIBUTE INHERITED VIA THIS RELATION:

RELATION NUMBER : 000199
TAG NAME : SET_ID

ENTER ENTITY CLASS NAME
EXIT

TEST NO.: CDTS7-Precompilation

DATE: March 20, 1984

1.1 Test Objective

This test case will precompile a FORTRAN Application Process containing a single NDML query request. The query will request data from the ORACLE CDM database. The precompilation of the application will require the Conceptual/External Transform and the ORACLE Request Process Generators.

1.2 Test Data Required

The test case requires a FORTRAN Application Process with an embedded NDML request. The source file for this Application Process is FTNTST1.PRC. The precompiler input directives for this Application Process are found in file CDTS7.DAT.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES >CDTS7  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTS7.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, ORACLE Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server

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1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDTS7.OUT. It will consist of a modified FORTRAN Application Process, one COBOL Conceptual/External Transformer and one COBOL ORACLE Request Processor.

All of the above programs will compile error free.

TEST NO.: CDTS7-Runtime

DATE: February 20, 1984

1.1 Test Objective

This test case will execute a precompiled FORTRAN Application Process containing a single NDML query against the CDM. The query will return a list of all attribute use class names for the entity class entered as the input data. This query will be repeated for each entity class name entered until a response of "EXIT" is entered at the input prompt.

1.2 Test Data Required

The test case requires the executables for the precompiled Application Process, the generated ORACLE Request Processors and the Conceptual/External Transformer.

1.3 Test Tools and Computer Time

The NTM and UIMS must be available and at the FUNCTION screen for the UIMS, the Application Process name must be entered for the function (G2CDTS7ZZZ). All user inputs will be requested from the NTM operator's console and all query results will be displayed on the NTM operator's console. In order to receive these prompts and results, the following VAX/VMS ASSIGN statement must be issued for the operator's console:

```
$ ASSIGN/GROUP _Tnn: SYS$COMMAND
```

where nn is the process number for the current terminal determined by issuing the VAX/UMS SHOW PROCESS command.

1.4 Required System Configuration

The configuration items required for the test case are as follows:

NTM - Message and queue server capabilities.
CDMP - Distributed Request Supervisor, Generated Application Processes, File Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this test case will be a list of all attribute use class names for the entity class name entered at the input prompt (see attached example). When "EXIT" is entered at the input prompt, the Application Process will terminate and the FUNCTION screen of the UIMS will be returned to the user's terminal.

CDTS7 - Runtime

ENTER ENTITY CLASS NAME
>SOFTWARE_MODULE

SOFTWARE_MODULE	MOD_ID
SOFTWARE_MODULE	LANG_NAME
SOFTWARE_MODULE	MOD_TITLE
SOFTWARE_MODULE	MOD_ABSTRACT
SOFTWARE_MODULE	LATEST_REV_DATE
SOFTWARE_MODULE	LATEST_USAGE_DATE
SOFTWARE_MODULE	STATUS_IND

ENTER ENTITY CLASS NAME
>EXIT

TEST NO.: CDTA1 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a single record CODASYL VAX-11 database requiring an AREA search. The query contains a single qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTA1.DAT. The test assumes the Conceptual Schema has been mapped to database situation "A" by use of the ORACLE command file "MAPDBA.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTA1  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTA1.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTM - Message and queue server capabilities.

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GDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDTA1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer, one CODASYL Request Processor subprogram and one CODASYL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTA2 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a single record CODASYL VAX-11 database requiring an AREA search. The query contains no qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTA2.DAT. The test assumes the Conceptual Schema has been mapped to database situation "A" by use of the ORACLE command file "MAPDBA.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTA2  
args:(cr)  
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTA2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform

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Generator, CODASYL Request Process Generators,
File Namer Queue Server, Application Process Namer
Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDTA2.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer, one Request Processor subprogram and one CODASYL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTA3 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a single record CODASYL VAX-11 database requiring an AREA search. The query contains two single qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTA3.DAT. The test assumes the Conceptual Schema has been mapped to database situation "A" by use of the ORACLE command file "MAPDBA.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTA3  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTA3.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTM - Message and queue server capabilities.

UTP620141000
1 November 1985

CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTA3.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one CODASYL Request Processor subprogram and one CODASYL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTB1 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and primary secondary AUC mappings. The query contains a single qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTB1.DAT. The test assumes the Conceptual Schema has been mapped to database situation "B" by use of the ORACLE command file "MAPDBB.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTB1  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTB1.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the test will be found in file CDTB1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, three CODASYL Request Processor subprograms and three CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTB2 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and primary secondary AUC mappings. The query contains no qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTB2.DAT. The test assumes the Conceptual Schema has been mapped to database situation "B" by use of the ORACLE command file "MAPDBB.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTB2  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTB2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTB2.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, three CODASYL Request Processor subprograms and three CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTB3 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and primary secondary AUC mappings. The query contains two qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTB3.DAT. The test assumes the Conceptual Schema has been mapped to database situation "B" by use of the ORACLE command file "MAPDBB.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTB3  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTB3.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTE3.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, three CODASYL Request Processor subprograms and three CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

NO.: CDTC1 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and primary secondary AUC mappings. The query contains a single qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTC1.DAT. The test assumes the Conceptual Schema has been mapped to database situation "C" by use of the ORACLE command file "MAPDBC.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTC1  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTC1.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTC1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one CODASYL Request Processor subprograms and one CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTC2 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and reversed primary and secondary AUC mappings. The query contains no qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTC2.DAT. The test assumes the Conceptual Schema has been mapped to database situation "C" by use of the ORACLE command file "MAPDBC.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTC2  
args: (cr)
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTC2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as

follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTC2.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one CODASYL Request Processor subprograms and one CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTC3 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query of a single SEC with vertical partitioning over three CODASYL databases of a single record each and reversed primary and secondary AUC mappings. The query contains two qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTC3.DAT. The test case assumes the Conceptual Schema has been mapped to database situation "C" by use of the ORACLE command file "MAPDBC.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTC3  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTC3.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTC3.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one CODASYL Request Processor subprograms and one CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTD1 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve mapping an NDML query to two CODASYL databases, one with a set and AUC to set the mappings and multiple area searches. This query contains one qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Query Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTD1.DAT. The test assumes the Conceptual Schema has been mapped to database situation "D" by use of the ORACLE command file "MAPDBD.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTD1  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND IN FILE CDTD1.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTM - Message and queue server capabilities.

CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Query Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTD1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, two CODASYL Request Processor subprograms and two CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTD2 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve mapping an NDML query to two CODASYL databases, one with a set and AUC to set the mappings and multiple area searches. This query contains no qualification. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Query Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTD2.DAT. The test assumes the Conceptual Schema has been mapped to database situation "D" by use of the ORACLE command file "MAPDBD.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTD2  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND IN FILE CDTD2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Query Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTD2.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, two CODASYL Request Processor subprograms and two CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTD3 - Precompilation

DATE: April 1, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve mapping an NDML query to two CODASYL databases, one with a set and AUC to set type mappings and multiple area searches. This query contains two qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Query Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTD3.DAT. The test assumes the Conceptual Schema has been mapped to database situation "D" by use of the ORACLE command file "MAPDBD.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTD3  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND IN FILE CDTD3.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Query Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTD3.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, two CODASYL Request Processor subprograms and two CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTE4 - Precompilation

DATE: June 1, 1985

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query joining four views to a CODASYL database of nine record types with two AUC to set type mappings. Some AUC's are phantoms. The data will be retrieved via a CALC search. The query program will contain owner and member traversal. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST4.PRC. The precompiler input directives for this Application Process are found in file CDTE4.DAT. The test assumes the Conceptual Schema has been mapped to database situation "E" by use of the ORACLE command file "MAPDBE.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTE4  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTE4.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, CODASYL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete, Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTE4.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one CODASYL Request Processor subprograms and one CODASYL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT1 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a TOTAL database containing two master files and one variable file. The query contains a single qualification requiring a serial search of a variable file. The precompilation of the Application Process will require the Conceptual/External Transform and the TOTAL Request Process Generators.

1.2 Test Data Required:

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTT1.DAT. The test assumes the Conceptual Schema has been mapped to database situation "1" by use of the ORACLE command file "MAPDET1.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM also must be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTT1  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTT1.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT1.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprograms and one TOTAL Request Processor main programs.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT2 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a TOTAL data base containing two master files and one variable file. The query contains no qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the TOTAL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTT2.DAT. The test assumes the Conceptual Schema has been mapped to database situation "1" by use of the ORACLE command file "MAPDBT1.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES > CDTT2  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND IN FILE CDTT2.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT2.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprogram and one TOTAL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT3 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will map an NDML query to a TOTAL data base containing two master files and one variable file. The query contains two single qualifications requiring a serial. The precompilation of the Application Process will require the Conceptual/External Transform and the CODASYL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTT3.DAT. The test assumes the Conceptual Schema has been mapped to database situation "1" by use of the ORACLE command file "MAPDBT1.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTT3  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND IN FILE CDTT3.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT3.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprogram and one TOTAL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT4 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query to a TOTAL data base containing two master files and one variable file. The query contains a single qualification, which will result in direct access of a master file. The precompilation of the Application Process will require the Conceptual/External Transform and the TOTAL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST1.PRC. The precompiler input directives for this Application Process are found in file CDTT4.DAT. The test assumes the Conceptual Schema has been mapped to database situation "2" by use of the ORACLE command file "MAPDET2.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTT4  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED.<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTT4.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT4.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprogram and one TOTAL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT5 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query to a TOTAL data base containing two master files and one variable file. The query contains no qualifications. The precompilation of the Application Process will require the Conceptual/External Transform and the TOTAL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST2.PRC. The precompiler input directives for this Application Process are found in file CDTT5.DAT. The test assumes the Conceptual Schema has been mapped to database situation "2" by use of the ORACLE command file "MAPDBT2.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTAINING PRECOMPILER DIRECTIVES , CDTT5  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTT5.OUT
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT5.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprogram and one TOTAL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDTT6 - Precompilation

DATE: July 16, 1984

1.1 Test Objective

This test case will precompile an Application Process containing an NDML query. This test case will involve an NDML query to a TOTAL data base containing two master files and one variable file. The query contains two qualifications, which will result in direct access of a master file. The precompilation of the Application Process will require the Conceptual/External Transform and the TOTAL Request Process Generators.

1.2 Test Data Required

The test case requires an Application Process with an embedded NDML request. The source file for this Application Process is UITEST3.PRC. The precompiler input directives for this Application Process are found in file CDTT6.DAT. The test assumes the Conceptual Schema has been mapped to database situation "2" by use of the ORACLE command file "MAPDBT2.UFI".

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDML
```

```
NDML PRECOMPILER
```

```
ENTER FILE CONTANING PRECOMPILER DIRECTIVES > CDTT6  
args: <cr>
```

```
>>>NDML PRECOMPILATION FINISHED<<<  
RESULTS OF PRECOMPILATION CAN BE  
FOUND ON FILE CDTT6.OUT.
```

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - IISS Precompiler, Conceptual/External Transform Generator, TOTAL Request Process Generators, File Namer Queue Server, Application Process Namer Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of the precompile test will be found in file CDTT6.OUT. It will consist of a modified Application Process, one Conceptual/External Transformer subprogram, one TOTAL Request Processor subprogram and one TOTAL Request Processor main program.

All of the above programs will compile COBOL error free.

TEST NO.: CDMTOO

DATE: June 1, 1985

1.1 Test Objective

This test case will precompile six Application Processes containing NDML requests as a single logical unit of work. It will test NDML retrieval and update capabilities of the IISS Precompiler. Retrievals and updates will be performed against ORACLE and VAX-11 databases. The precompilation of the Application Process will require the Conceptual/External Transformer the ORACLE Request Processor and the CODASYL Request Process generators.

1.2 Test Data Required

This test case requires six (6) Application Processes with NDML requests. The source files for these Application Processes are: CDMTOO.PRC, CDMT01.PRC, CDMT11.PRC, CDMT20.PRC, CDMT21.PRC and CDMT22.PRC. These Application Processes must be precompiled as a single logical unit of work using the procedure file NDMLGRP, which contains the precompiler input directive.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ @ NDMLGRP
COMBINE A GROUP OF .PRC FILES AS A SINGLE UNIT
AND USE NDML PRECOMPILER
-----
NAME OF THE APPLICATION , : CDMT
NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMTOO
NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMT01
NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMT11
NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMT20
NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMT21
```

NAME OF PRC FILE (C/R TO STOP, LEAVE .PRC OFF):
CDMT22

...NDML PRECOMPILATION FINISHED...
RESULTS OF PRECOMPILATION CAN BE
FOUND ON FILE CDMT.OUT.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTH - Message and queue server capabilities.
- CDMP - IIS Precompiler, Conceptual/External Transform Generator, ORACLE and CODASYL Request Process Generators, File Name Queue Server, Application Process Name Queue Server, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The results of this precompile test will be found in file CDMT.OUT. It will consist of:

One Conceptual/External Transformer Subprogram
Six Modified Application Processes
Four Request Processor Main Programs (two ORACLE
Mains, two VAX-11 Mains)
Fifteen Request Processor Subprograms

All of the above programs will compile error free.

TEST NO.: CDMTOO - Runtime

DATE: June 1, 1985

1.1 Test Objective

This test case will execute the precompiled COBOL Application Processes containing NDML retrieval and update requests against the ORACLE CDM, VAX-11 NCNN and VAX-11 PIOS databases. Six Application processes have been grouped together as a single logical unit of work - one acts as a driver, one retrieves data from the VAX-11 database, one inserts into an ORACLE database, one modifies the ORACLE database, one deletes from the ORACLE database, and one inserts into the VAX-11 NCNN database.

1.2 Test Data Required

To access the VAX-11 databases the following must be defined:

```
SDEFINE/GROUP CDD$DEFAULT "CDD$TOP.IISS"  
SDEFINE/GROUP DENS$RUJ "test directory name"
```

The user name where the test is being executed must have access to the following databases and all of its schemas.

```
IISS_DVLP:[CDC.VAX11DB]PIOS  
CIDS_PROD:[NCNN]NCNN
```

This test case requires the executables for:

```
the Precompiled Application Process (CDMTOO)  
the generated ORACLE Request Processor  
the generated VAX-11 Request Processor
```

1.3 Test Tools and Computer Time

The NTH must be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN CDMTOO  
(see attached example)
```

1.4 Required System Configuration

The configuration items required for the test case are as follows:

- NTH - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, Generated Application Processes, File Delete Queue Server.

1.5 Test Completion Criteria (Expected Results)

The user is prompted to enter the test case of his/her choice. If Test-case 01 is entered, the query will return a list of attributes from the entity "Manufacturing-Order" in the PIOS database for the planner-code entered as input data. This query returns the values of the arithmetic functions performed on the attributes (eg max, sum, average). The test case is repeated till the user enters "N" in response to "Do you want to try again? Y/N".

If test-case 11 is entered at the prompt, a record is inserted into entity class "TOOL_OBSTACLE" in the MCMN database for a tool-id, obstacle-quantity and obstacle-fix-indicator entered as input. This test case is repeated till the user enters "N" in response to "DO you want to try again? Y/N".

If test-case 20 is entered, a record is inserted into entity class "DATA_BASE" for a database name entered as input.

If test-case 21 is entered a record in entity class "DATA_BASE" is modified with the user entered database name.

If test-case 22 is entered, the previously entered record into entity class "DATA_BASE" is deleted.

After each of these requests a commit is performed. Test cases 20, 21, 22 have to be done in sequential order.

Testing will be completed when a response of 00 is entered at the input prompt. (see attached example).

In order to verify the existence of any new records inserted in test-case 11, the following script can be used to query the VAX-11 MCMN database.

```
& RUN SYS$SYSTEM:DBQ
```

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dbq > BIND DEFAULT_SUBSCHEMA FOR CIDS_PROD:[MGM]MGM

dbq > READY CONCURRENT UPDATE

dbq > FETCH FIRST TOOL_OBSTACLE USING TO_ITEM_ID
TO_ITEM_ID [X(38)]= xxxxx

results will be displayed

dbq > EXIT

where xxxxx = TOOL_ID entered in test-case 11

CDMTOO - Runtime

```
$ RUN CDMTOO
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC 99):
ENTER 00 TO EXIT.
LEGITIMATE TESTS ARE 01, 11, 20, 21, 22.
01
CDMTO1
TESTS MAX, SUM, AVG
CODASYL QUERY
POSSIBLE CODES .. JA OR SS OR MA ..
ENTER NO_PLANNER_CODE PIC XX
JA
PLANNER_CODE : JA
FIXED-COST: VARIABLE-COST : MATERIAL-COST:
LABOR-COST: QUANTITY-REJECTED
(((
30000
10000
25000
25000
3
)))
CDMTO1 SUCCESSFUL
NDML-STATUS: 00000 NDML-COUNT: 000003
DO YOU WANT TO TRY CDMTO1 AGAIN? Y/N:
N
COMMIT PERFORMED ..
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC99):
ENTER 00 TO EXIT.
LEGITIMATE TESTS CARE 01, 11, 20, 21, 22.
```

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11
CDMT11
TESTS INSERTS INTO USER STRUCTURE
ENTER OBSTACLE_QUANTITY PIC 9(8)
00000020
POSSIBLE INDICATOR..Y/N
ENTER OBSTACLE_FIX_INDICATOR PIC X
Y
POSSIBLE TOOL-IDS...
..TOO10 TO TOO15
ENTER UNAVAIL_TOOL_ID PIC X(38)
TOO10
INSERT INTO UNAVAILABLE_TOOL ACCOMPLISHED
CDMT11 SUCCESSFUL
NDML-STATUS : 00000 NDML-COUNT : 000000
DO YOU WANT TO TRY CDMT11 AGAIN? Y/N:
N
COMMIT PERFORMED ..
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC 99):
ENTER 00 TO EXIT.
LEGITIMATE TESTS ARE 01, 11, 20, 21, 22.
20
CDMT20
INSERT INTO DATA_BASE .. ORACLE UPDATE
ENTER A NAME FOR YOUR database
TESTDB
CDMT20 SUCCESSFUL
COMMIT PERFORMED ..
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC 99):
ENTER 00 TO EXIT.
LEGITIMATE TESTS ARE 01, 11, 20, 21, 22
21
CDMT21
MODIFY DATA_BASE .. ORACLE UPDATE
ENTER A NEW_NAME FOR YOUR database
NEVTESTDB
CDMT21 SUCCESSFUL
COMMIT PERFORMED ..
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC 99):
ENTER 00 TO EXIT.
LEGITIMATE TESTS ARE 01, 11, 20, 21, 22
22
CDMT22
DELETE FROM DATA_BASE ... ORACLE UPDATE
CDMT22 SUCCESSFUL
COMMIT PERFORMED ..
ENTER CDM RELEASE 2.0 TEST NUMBER (PIC 99):

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ENTER 00 TO EXIT.
LEGITIMATE TESTS ARE 01, 11, 20, 21, 22.
00
TESTING COMPLETED.

TEST NO.: NDDL1-Runtime

DATE: October 15, 1984

1.1 Test Objective

This test case will execute the following NDDL commands which will create a viable forms control processing system model:

```
create entity class
create attribute class
alter entity class
create relation class
```

1.2 Test Data Required

The test case requires three data files, FPCS0.DAT, FPCS02.DAT and FPCS03.DAT which contain the NDDL commands to create the model.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTH must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL
  args: (FPCS0.DAT filename.ext
```

where filename.ext is any valid VAX file name.

Repeat the above procedure for files FPCS02.DAT and FPCS03.DAT.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

```
NTH - Message and queue server capabilities.
CDMP - Distributed Request Supervisor, File Name Queue
      Server, File Delete Queue Server, NDDL Command
      Processors.
```

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1 November 1985

1.5 Test Completion Criteria (Expected Results)

The results of this runtime test will be a newly created viable model in the CDM. Each MDDL command and its execution status will be reported in the file named above as filename.ext.

TEST NO.: NDDL2 - Runtime

DATE: December 3, 1984

1.1 Test Objective

This test case will define the internal schema to the CDM for two IMS databases each with two segments and a path between the segments.

Each segment will contain two elements. The test case will execute the following NDDL commands:

```
define database  
define record  
define set
```

1.2 Test Data Required

The test case requires data file ISCMDS1.DAT which contains the NDDL commands. The test case will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case will require access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: .ISCMDS1.DAT .filename.ext
```

where filename.ext is any valid VAX filename

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - NDDL Command Processors, Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server.

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1 November 1985

1.5 Test Completion Criteria (Expected Results)

The results of this runtime NDDL test will be an internal schema definition for two IMS databases in the CDM. Each NDDL command and its execution status will be reported in the file named above as filename.ext.

TEST NO.: NDDL3 - Runtime

DATE: December 3, 1984

1.1 Test Objective

This test case will delete the internal schema definition contained in the CDM for two IMS databases. The test case will drop the definition for the elements, segments, paths contained in the database and then the database definition. The test case will execute the following NDDL commands:

```
drop field
drop record
drop set
drop database
```

1.2 Test Data Required

The test case requires data file ISCMDS2.DAT which contains the NDDL commands. This test case requires that test case NDDL2 has successfully executed. The test case will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case will require access to the ORACLE CDM database. The NTH must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL
args: .ISCMDS2.DAT ,filename.ext
```

where filename.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTH - Message and queue server capabilities.
CDMP - NDDL Command Processors, Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server.

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1 November 1985

1.5 Test Completion Criteria (Expected Results)

The results of this runtime NDDL test will be the removal of the internal schema definition for two IMS databases in the CDM. Each NDDL command and its execution status will be reported in the file named above as filename.ext.

TEST NO.: NDDL4 - Runtime

DATE: December 3, 1984

1.1 Test Objective

This test case will define the internal schema to the CDM for two TOTAL databases each with two files and a link between the files.

Each file will contain two fields. The test case will execute the following NDDL commands:

```
define database
define record
define set
```

1.2 Test Data Required

The test case requires data file TOTCMD1.DAT which contains the NDDL commands. The test case will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case will require access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL
args: <TOTCMD1.DAT >filename.ext
```

where filename.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - NDDL Command Processors, Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server.

UTP620141000
1 November 1985

1.5 Test Completion Criteria (Expected Results)

The results of this runtime NDDL test will be an internal schema definition for two TOTAL databases in the CDM. Each NDDL command and its execution status will be reported in the file named above as filename.ext.

TEST NO.: NDL4 - Runtime

DATE: December 3, 1984

1.1 Test Objective

This test case will delete the internal schema definition contained in the CDN for two TOTAL databases. The test case will drop the definition for the fields, files, links contained in the database and then the database definition. The test case will execute the following NDDL commands:

```
drop field
drop record
drop set
drop database
```

1.2 Test Data Required

The test case requires data file TOTCMD2.DAT which contains the NDDL commands. This test case requires that test case NDDL4 has successfully executed. The test case will also require access to the IISS CDN.

1.3 Test Tools and Computer Time

The test case will require access to the ORACLE CDN database. The NTH must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL
args: .TOTCMD2.DAT >filename.ext
```

where filename.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTH - Message and queue server capabilities.
CDMP - NDDL Command Processors, Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server.

UTP620141000
1 November 1985

1.5 Test Completion Criteria (Expected Results)

The results of this runtime NDDL test will be the removal of the internal schema definition for two TOTAL databases in the CDM. Each NDDL command and its execution status will be reported in the file named above as filename.ext.

TEST NO.: NDDL6

DATE: January 21, 1985

1.1 Test Objective

This test will create four (4) IDEF1 conceptual schema models in the CDM to be used in test cases NDDL7 through NDDL16.

1.2 Test Data Required

The test case requires the following four data files which contain NDDL commands to create the models.

MODEL1.DAT
MODEL2.DAT
MODEL3.DAT
MODEL4.DAT

The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: ' MODEL1.DAT 'filenam.ext
```

where filenam.ext is any valid VAX file name.

Repeat the above procedure for files MODEL2.DAT, MODEL3.DAT and MODEL4.DAT.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTM - Message and queue server capabilities.
CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

UTPG20141000
1 November 1985

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`. The results of each test will be a newly created model in the CDM.

TEST NO.: NDDL7

DATE: January 21, 1988

1.1 Test Objective

This test case will execute the MDDL command "COPY DESCRIPTION" which will copy a description of an object type from an existing model to the same object type in another model.

1.2 Test Data Required

The test case requires 2 data files

CPYDES1.DAT - creates the target model
CPYDES.DAT - contains the MDDL command "COPY DESCRIPTION"

In addition, Test No. NDDL6 must have complete successfully. The test will also require access to the IISS CDN.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDN database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN MDDL  
args: ' CPYDES1.DAT ,filenam.ext
```

where filenam.ext is any valid VAX file name.

Repeat the above procedure for file CPYDES.DAT.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTM - Message and queue server capabilities.
CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, MDDL Command Processors.

UTP000141000
1 November 1988

1.5 Test Completion Criteria (Expected Results)

Each MDDL command and its execution status will be reported in the file named above as filename.out. The results of this run time test will be a newly created description for relation **NEVENT_B ALSO_USES NEVENT_C.**

TEST NO.: NDDL6

DATE: JANUARY 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COPY ATTRIBUTE ON FILE" to generate NDDL commands on a specified file. These NDDL commands will copy an attribute from an existing model along with any associated keywords, aliases and descriptions to a target model.

1.2 Test Data Required

The test case requires the data file COPATT.DAT which contains the NDDL command "COPY ATTRIBUTE". In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: . COPATT.DAT .filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

UTP620141000
1 November 1985

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`. The following NDDL commands to create the attribute will be generated on file `COPATT.FIL`

```
ALTER MODEL GENERALPURPOSE ;
CREATE ATTRIBUTE NEWATT_A DOMAIN aas
      KEYWORD ATTA_BOY ;
DESCRIBE DEFINITION OF ATTRIBUTE NEWATT_A
.
THIS IS AN ALIAS OF ATT_A IN MODEL AUGIE_MOD
.

CREATE ALIAS ATTRIBUTE
      NEWATT_A IS ATTA_ALIAS ;
```

TEST NO.: NDDL6

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "CHECK MODEL" which will verify if a model conforms to all specified modelling rules.

1.2 Test Data Required

The test requires the data file CHKMOD.DAT which contains the NDDL command "CHECK MODEL". In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTH must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: ( CHKMOD.DAT ,filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTH - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

UTP620141000
1 November 1965

1.5 Test Completion Criteria (Expected Results)

Following are the error messages which result for this model. The messages will be found in filename.ext.

A NOW SPECIFIC RELATIONSHIP EXISTS BETWEEN
CRUM1 NEEDS CRUM2RELATIONSHIP EXISTS BETWEEN
TAG AA FOR ENTITY CRUM1 HAS NO DOMAIN
TAG AA FOR ENTITY CRUM1 HAS NO DOAMIN
TAG AA FOR ENTITY CRUM1 HAS NO DOMAIN
C2K1 OF CRUM2 IS A DUPLICATE KEY OR SUBSET
ENTITY CRUM3 HAS NO ATTRIBUTE USE CLASS
ENTITY CRUM3 HAS NO KEY CLASS
TAG XX FOR ENTITY CRUM3 HAS NO DOMAIN S
TAG YY FOR ENTITY CRUM3 HAS NO DOMAIN S
MODEL CRUMMY_MOD HAS NO TOP ENTITY
MODEL CRUMMY_MOD HAS NO BOTTOM

ENTITY

Since errors are detected, this model will not be
'CHECKED'.

TEST NO.: NDDL10

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COMPARE MODEL" to compare two models. All matching attributes, entities and keywords found in the two models are reported to the user.

1.2 Test Data Required

The test case requires the data file CMPMOD.DAT which contains the NDDL command "COMPARE MODEL". In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTH must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: ( CMPMOD.DAT ,filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

NTH - Message and queue server capabilities.
CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

UTP620141000
1 November 1985

1.5 Test Completion Criteria (Expected Results)

Following are the messages which are the result of the comparison between the two models. The messages will be found in file filename.ext.

ENTITY OR ALIAS ENT_C EXISTS IN BOTH MODELS
ENTITY OR ALIAS ENT1 EXISTS IN BOTH MODELS
ATTRIBUTE OR ALIAS DD EXISTS IN BOTH MODELS
ATTRIBUTE OR ALIAS CC EXISTS IN BOTH MODELS
ENTITY ENT_C AND ENTITY ENT_C
HAVE MATCHING KEYWORD KS
RELATION ENT_B USES ENT_C AND RELATION ENT3 USES
ENT_C
HAVE MATCHING KEYWORD USES_KV

TEST NO.: NDDL11

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COPY ENTITY WITH RELATION" to generate NDDL commands on a specified file. All relations in which the entity being copied is the dependent entity are generated providing the independent entities in the relation exist in the target model. All relations in which the entity being copied is the independent entity are generated providing the dependent entities in the relation exist in the target model.

1.2 Test Data Required

The test case require two data files.

COPNTR1.DAT - create the target model
COPENTR.DAT - contains the NDDL command "COPY ENTITY...
WITH RELATION"

In addition, Test No. NDDL6 must have completed successfully. The test also requires access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: ( COPNTR1.DAT )filenam.ext
```

where filenam.ext is any valid VAX file name

Repeat the above procedure for file COPENTR DAT

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COMMON DATA MODEL 5. (U) GENERAL ELECTRIC CO
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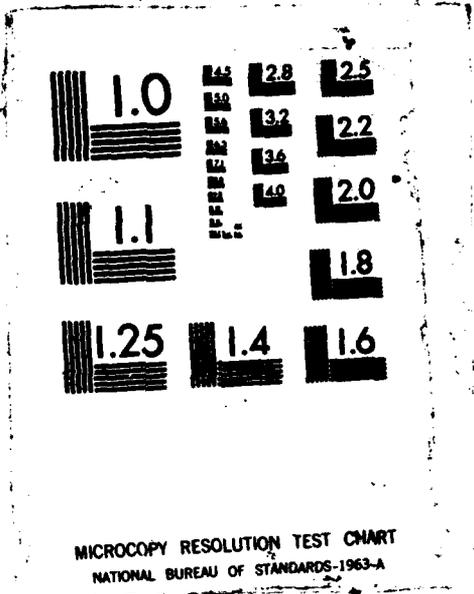
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1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- GDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`.

The following NDDL commands to copy the entity with relation are generated on file `COPENTR.FIL`

```
ALTER MODEL COPYREL ;
CREATE ATTRIBUTE ATT_B DOMAIN yys ;
CREATE ENTITY ENT_B OWNED ATTRIBUTE ATT_B ;
CREATE RELATION 1 ENT_A HAS 0 : MANY ENT_B MIGRATES
EAK SET
      AA = AA ;
CREATE RELATION 1 ENT1 OWNS 0 : MANY ENT_B MIGRATES
EIK SET
      EB_BB = BB ;
ALTER ENTITY ENT_B ADD
      KEY EBK = AA EB_BB ;
CREATE RELATION 1 ENT_B USES 0 : MANY ENT_C MIGRATES
EBK SET
      EC_AA = AA EC_BB = EB_BB ;
```

TEST NO.: NDDL12

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COPY ENTITY WITH STRUCTURE" to generate NDDL commands on a specified file. These NDDL commands will copy the entity and the tree structure dependent on the entity and all associated attributes, keys and relations. Keywords, aliases and descriptions have been excepted, hence are not copied to the target model.

1.2 Test Data Required

The test case requires the data file COPENETS.DAT which contains the NDDL command "COPY ENTITY WITH STRUCTURE". In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: < COPENETS.DAT >filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`.

The following NDDL commands to copy the entity with structure are generated in file `COPENTS.FIL`.

```
ALTER MODEL GENERALPURPOSE ;
CREATE ATTRIBUTE ATT_8 DOMAIN UNDEFINED ;
CREATE ENTITY ENT8 OWNED ATTRIBUTE ATT_8 ;
CREATE ATTRIBUTE CC DOMAIN xxxs ;
CREATE ATTRIBUTE ATT_B DOMAIN yys ;
CREATE ATTRIBUTE ATT_C DOMAIN yys ;
CREATE ENTITY ENT_B
    OWNED ATTRIBUTE ATT_B ;
CREATE ENTITY ENT_C
    OWNED ATTRIBUTE CC ATT_C ;
CREATE ENTITY ENT6
;
CREATE RELATION 1 ENT8 IS_PART_OF 0 : MANY ENT_B ;
ALTER ENTITY ENT_B ADD
    KEY EBK = AA EB_BB ;
CREATE RELATION 1 ENT_B USES 0 : MANY ENT_C MIGRATES
EBK SET
    EC_AA = AA EC_BB = EB_BB ;
ALTER ENTITY ENT_C ADD
    KEY ECK = EC_AA CC ;
CREATE RELATION 1 ENT_B IDENTIFIES 0 : MANY ENT6
MIGRATES EBK SET
    AA = AA E6_BB = EB_BB ;
ALTER ENTITY ENT6 ADD
    KEY E6K = E6_BB ;
```

TEST NO.: NDDL13

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COMBINE ENTITY" to generate NDDL commands on a specified file. These NDDL commands will physically combine two entities which exist in two separate models.

All relations, keys, aliases and keywords associated with the entity are generated, except descriptions, as this option has been excluded.

1.2 Test Data Required

The test case requires the data file CMBENT.DAT which contains the NDDL command "COMBINE ENTITY". In addition, Test No. NDDL6 must have completed successfully. The test also requires access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: < CMBENT.DAT >filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

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1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`.

The following NDDL commands to combine the two entities are generated on file `CMBENT.FIL`.

```
ALTER MODEL SALTY ;
CREATE ATTRIBUTE ATT_B DOMAIN yys
;
ALTER ENTITY ENT3 ADD OWNED ATTRIBUTE ATT_B ;
CREATE ALIAS ENTITY
    ENT3 IS ENT_B ;
CREATE RELATION 1 ENT1 OWNS 0 : MANY ENT3 MIGRATES E1K

SET
    EB_BB = BB ;
ALTER ENTITY ENT3 ADD
    KEY EBK = AA EB_BB ;
```

TEST NO.: NDDL14

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "COPY MODEL" to generate NDDL commands on a specified file. These NDDL commands will create a new model and all of its associated entities, attributes, relations, descriptions, keys and keywords that is a copy of an existing model.

1.2 Test Data Required

The test case requires the data file COPMOD.DAT which contains the NDDL "COPY MODEL" command. In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: < COPMOD.DAT >filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as filenam.ext.

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The following NDDL commands to create the new model will be generated on file GOPMOD.FIL.

```
CREATE MODEL AUGIE_COPY ;
CREATE ATTRIBUTE AA DOMAIN aas
      KEYWORD AA_KEYWORD ;
CREATE ATTRIBUTE ATT_A DOMAIN aas
      KEYWORD ATTA_BOY ;
DESCRIBE DEFINITION OF ATTRIBUTE ATT_A
"
THIS IS AN ALIAS OF ATT_A IN MODEL AUGIE_MOD
"
;
CREATE ALIAS ATTRIBUTE
      ATT_A IS ATTA_ALIAS ;
CREATE ATTRIBUTE BB DOMAIN UNDEFINED
;
DESCRIBE DEFINITION OF ATTRIBUTE BB
"
BB IS AN ATTRIBUTE IN MODEL AUGIE_MOD
"
;
DESCRIBE EXAMPLE OF ATTRIBUTE BB
"
A RONCO CODAMATIC IS AN EXAMPLE OF A BB ATTRIBUTE
"
;
CREATE ALIAS ATTRIBUTE
      BB IS BB_ALIAS ;
CREATE ATTRIBUTE DD DOMAIN dds
;
CREATE ATTRIBUTE ATT_8 DOMAIN UNDEFINED
;
CREATE ATTRIBUTE CC DOMAIN xxs
      KEYWORD CC_KEYWORD ;
CREATE ATTRIBUTE ATT_B DOMAIN yys
;
CREATE ATTRIBUTE ATT_C DOMAIN yys
;
DESCRIBE DEFINITION OF ATTRIBUTE ATT_C
"
ATT_C IS A PRIMARY ATTRIBUTE IN MODEL AUGIE_MOD
"
;
CREATE ENTITY ENT_A
      OWNED ATTRIBUTE AA ATT_A
```

```
CREATE ENTITY ENT_B
    OWNED ATTRIBUTE ATT_B
;
CREATE ENTITY ENT_C
    OWNED ATTRIBUTE CC ATT_C
    KEYWORD K3 K10 ;
CREATE ENTITY ENT1
    OWNED ATTRIBUTE BB DD
;

CREATE ENTITY ENT8
    OWNED ATTRIBUTE ATT_8
;
CREATE ENTITY ENT6
;
ALTER ENTITY ENT_A ADD
    KEY EAK = AA ;
ALTER ENTITY ENT1 ADD
    KEY E1K = BB ;
CREATE RELATION 1 ENT_A HAS 0 : MANY ENT_B MIGRATES
EAK SET
    AA = AA
;
CREATE RELATION 1 ENT1 OWNS 0 : MANY ENT_B MIGRATES
E1K SET
    EB_BB = BB
;
ALTER ENTITY ENT_B ADD
    KEY EBK = AA EB_BB ;
CREATE RELATION 1 ENT1 CONTAINS 0 : MANY ENT8
;
CREATE RELATION 1 ENT_B USES 0 : MANY ENT_C MIGRATES
EBK SET
    EC_AA = AA EC_BB = EB_BB
    KEYWORD USES KW USES KEYWORD ;
DESCRIBE DEFINITION OF RELATION ENT_B USES ENT_C
"
ENT_B USES ENT_C IS A RELATION IN AUGIE_MOD
"
;
DESCRIBE SOURCE OF RELATION ENT_B USES ENT_C
"
SOURCE OF RELATION IS A CRAZED ANALYST
"
;
ALTER ENTITY ENT_C ADD
```

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```
KEY ECK = EC AA CC ;  
CREATE RELATION 1 ENT_B IDENTIFIES 0 : MANY ENT6  
MIGRATES EBK SET  
AA = AA E6_BB = EB_BB  
;  
ALTER ENTITY ENT6 ADD  
KEY E6K = E6_BB ;  
CREATE RELATION 1 ENT6 IS_PART_OF 0 : MANY ENT_B  
;
```

TEST NO.: NDDL15

DATE: January 21, 1985

1.1 Test Objective

This test case will execute the NDDL command "MERGE MODEL" to generate NDDL commands on a specified file. These NDDL commands will physically merge two IDEF1 models, either combining or copying entities along with associated attributes, keys, and relations.

Keywords, aliases and descriptions will not be generated, as they have been "excepted".

1.2 Test Data Required

This test case requires the data file MRGMOD.DAT which contains the NDDL command "MERGE MODEL". In addition, Test No. NDDL6 must have completed successfully. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: < MRGMOD.DAT >filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as `filenam.ext`.

The following NDDL commands to merge the models are generated on file `MRGMOD.FIL`.

```
ALTER MODEL AUGIE MOD ;
CREATE ATTRIBUTE EE DOMAIN aas ;
CREATE ATTRIBUTE XX DOMAIN aas ;
ALTER ENTITY ENT1 ADD OWNED ATTRIBUTE EE XX ;
ALTER ENTITY ENT1 ADD
    KEY E1K = EE XX ;
CREATE ENTITY ENT3 OWNED ATTRIBUTE CC
    /* THIS ATTRIBUTE MAY BE OWNED IN TARGET MODEL
*/ ;
CREATE RELATION 1 ENT1 R1 0 : MANY ENT3
MIGRATES E1K SET
EE = EE XX = XX ;
ALTER ENTITY ENT3 ADD
    KEY E3K3 = EE CC ;
CREATE ENTITY ENT4 OWNED ATTRIBUTE DD
    /* THIS ATTRIBUTE MAY BE OWNED IN TARGET MODEL
*/ ;
CREATE RELATION 1 ENT3 R3 0 : MANY ENT4
MIGRATES E3K3 SET
EE = EE CC = CC ;
ALTER ENTITY ENT4 ADD
    KEY E4K4 = CC DD ;
CREATE ATTRIBUTE YY DOMAIN aas ;
ALTER ENTITY ENT_C ADD OWNED ATTRIBUTE YY ;
CREATE RELATION 1 ENT3 USES 0 : MANY ENT_C
MIGRATES E3K3 SET
EE = EE CC = CC ;
ALTER ENTITY ENT_C ADD
    KEY ECKC = EE YY ;
```

TEST NO.: NDDL16

DATE: January 21, 1985

1.1 Test Objective

This test will drop the IDEF1 conceptual schema models that were created for testing NDDL modelling commands. This should be the concluding test, in the series NDDL6 thru NDDL16.

1.2 Test Data Required

This test will require the data file DROPMOD.DAT which will contain the NDDL commands. The test will also require access to the IISS CDM.

1.3 Test Tools and Computer Time

The test case requires access to the ORACLE CDM database. The NTM must also be running and available. At the VAX/VMS prompt (\$) type:

```
$ RUN NDDL  
args: < DROPMOD.DAT >filenam.ext
```

where filenam.ext is any valid VAX file name.

1.4 Required System Configuration

The configuration items required for this test case are as follows:

- NTM - Message and queue server capabilities.
- CDMP - Distributed Request Supervisor, File Name Queue Server, File Delete Queue Server, NDDL Command Processors.

1.5 Test Completion Criteria (Expected Results)

Each NDDL command and its execution status will be reported in the file named above as filenam.ext. All six models will be dropped from the CDM. This includes all attributes, entities, relations, keys, keywords, descriptions etc., associated with the model.

END

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