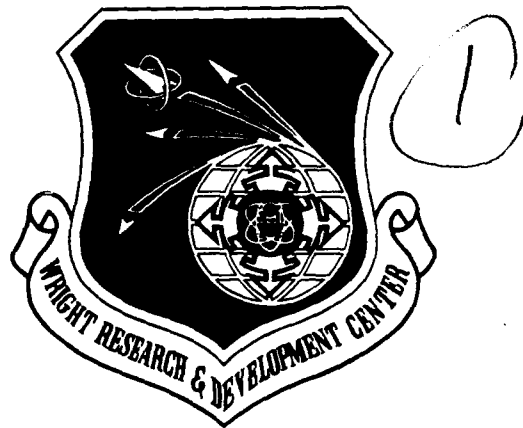


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Part 14

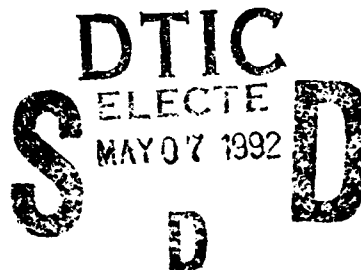
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INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 14 - Neutral Data Manipulation Language (NDML) Precompiler
Transform NDML Request from External Schema to Conceptual Schema
Product Specification

M. Apicella, J. Slaton, B. Levi

Control Data Corporation
Integration Technology Services
2970 Presidential Drive
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September 1990

Final Report for Period 1 April 1987 - 31 December 1990

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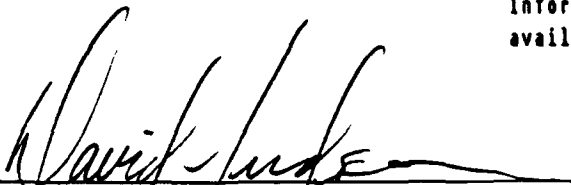


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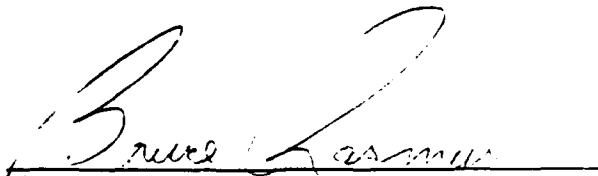
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DAVID L. JUDSON, Project Manager
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25 July 91
DATE

FOR THE COMMANDER:


BRUCE A. RASMUSSEN, Chief
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25 July 91
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Part 14



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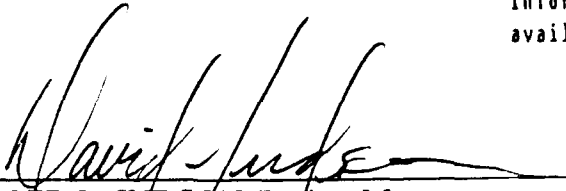
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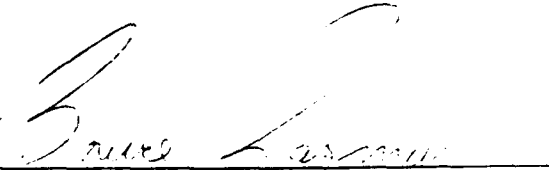
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FOREWORD

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

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

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

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

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SECTION 1

SCOPE

1.1 Identification

This specification establishes the design of Function PRE4, "Transform ES/CS", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM program Office. This CI constitutes one of the subsystems of the Common Data Model Processor (CDMP).

1.2 Functional Summary

The purpose of this Computer Program Configuration Item (CPCI) is to convert an NDML or SQL request, expressed in an external schema, and to terminate one or more NDML or SQL requests expressed in conceptual schema terms.

The following functions will be performed by this CPCI:

- 1) Translate each user view into the corresponding entity classes and each data item into the corresponding attribute use class;
- 2) Identify the relational join operations needed to construct each user view table; *A.C.D*
- 3) Identify the integrity tests that will be employed with each NDML or SQL update request.

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SECTION 2

DOCUMENTS

2.1 Reference Documents

1. ICAM Documentation Standards: IDS15012000A, 28 December 1981.
2. D. Appleton Co., CDM Administrators Manual; UM620141000, March, 1984.
3. D. Appleton Co., CDM1-IDEF, Model of the Common Data Model; CCS620141000, 15 May, 1985.
4. D. Appleton Co., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDML Precompiler; DS620141200, October, 1984.
5. D. Appleton Co., Embedded NDML Programmer's Reference Manual; PRM620141200, March, 1985.
6. Softech, Inc., NTM Programmer's Guide; UM620140001, July, 1984.
7. Control Data Corp., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration item: NDDL Command Processor: DS620141100, June 1985.

2.2 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 retrieval 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
REQUIREMENTS

3.1 Structural Description

A graphic portrayal of this CPCI is included in Section 3.10. This chart shows the hierarchical relationship of each module making up this CPCI.

This CPCI uses a number of lower level modules to handle specific operations such as:

1. Verifying the user view (CDVIEW).
2. Verifying user data items (CDEMD).
3. Determining all data items in a view (CDEMDA).
4. Match view names with view abbreviations (CDABVW).
5. Determine if a partial entity class was inserted (CDPTEC).
6. Determine if a data item is mapped to conceptual schema (CDPDI).
7. Look up meta data for a conceptual attribute (CDCMD).
8. Determine if a view maps to multiple entities (CDNNEC).
9. Develop type 1 integrity test (CDINEC, CD1RIT).
10. Develop key uniqueness integrity test (CDKYUQ).
11. Check for modification of a partial inherited key class (CDMPIK).
12. Develop type 2 integrity test (CD2RIT).
13. Add rows to the CS_ACTION_LIST (CDACAL).
14. Add a row to the CS_ACTION_LIST and CS_QUALITY_LIST for a type 1 integrity test (CDACAQ).
15. Add a row to the TEMP_XFORM_LIST (CDATXL).
16. Retrieve a tag name (CDGTN).
17. Retrieve type 2 qualifications for a view (CDG7VW).
18. Verify join to target user view for delete and modify (CDJUV).
19. Build ES/CS Action List entries (CDMQAL).
20. Populate Boolean List (CDPBL).

21. Transform ES schema to CS (CDPRE4).
22. Obtain relation class number for outer join (CDRCNR).
23. Get the relation class and owner tag of an inherited attribute (CDRCTG).
24. Retrieve all tags to which a view maps (CDTG VW).
25. Update a row of the TEMP_XFORM_LIST (CDUTXL).
26. Verify a numeric value (CDVNV).
27. Verify that a TEMP_AUC is not a key class member (CDVTCK).

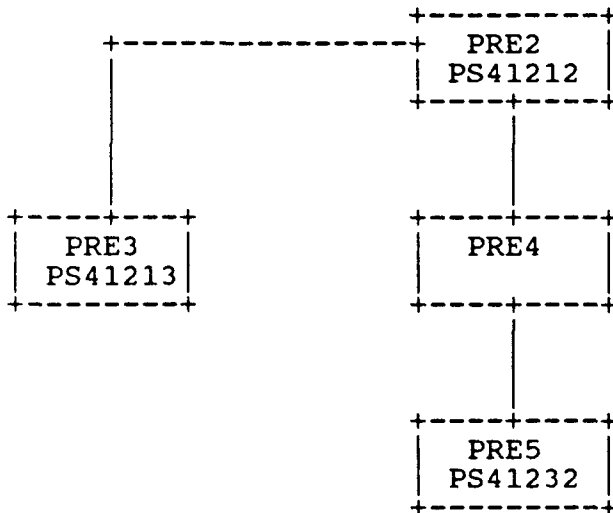
3.2 Functional Flow

This CPCI implements the logic defined in the Development Specification for this CPCI. Details of inputs/outputs and relationships between modules are to be found in Section 3.10.

This CPCI has been designated to operate in a batch or interactive mode. It must use the ORACLE DBMS installed on a DEC VAX computer.

3.3 Interfaces

The following diagram depicts the interface of PRE4 with other CPCI's in the system.



3.3.1 Inputs/Outputs

The following table depicts the inputs and outputs of this CPCI. A detail description for each item can be found in the DS for this CPCI.

INPUT

OUTPUT

	Return Status
ES Qualify List	
ES Action List	
CS Qualify List	
User View Abbreviation List	
CS Action List	
Parcel 1 File Pointer	
Parcel 2 File Pointer	
Parcel 3 File Pointer	
Parcel 4 File Pointer	
Error File Pointer	
Host of the precompiler	
Host the AP is to run on	
Source Language	
Code generator table	
User Module Identification	
Logical Unit of Work Name	
NDML Counter	
Boolean List	
Result Field Table	
JQG Attribute Pair List	
Block Stack	
NDML Stack	
First Inner Select	
Fortran Variable Table	
Subroutine Language	
Embedded Language	
Cursor Table	
Whenever Table	

3.4 Program Interrupts

Not applicable to this CPCI.

3.5 Timing and Sequencing Description

This CPCI is called for each NDML or SQL statement parsed by PRE3 and identified to be semantically correct by PRE2. Thus, PRE4 may execute many times in a precompiler run. PRE 4 in turn calls PRE5 for each conceptual request. A conceptual request is either the original user NDML or SQL request or referential integrity tests, which are implemented as a conceptual schema retrievals.

3.6 Special Control Features

Not applicable to this CPCI.

3.7 Storage Allocation

3.7.1 Database Definition

The database used by this CPCI is the Common Data Model (CDM) database. This model is defined by the CDM1, the IDEF-1 model of the CDM, Reference Document Number 3.

3.7.1.1 File Description

No permanent files have been defined for this CPCI. It may use temporary scratch files for such things as generated program source code or temporary query results.

3.7.1.2 Table Description

All tables used by this CPCI have been defined by the Development Specification for this CPCI.

3.7.1.3 Item Description

Not applicable to this CPCI.

3.8 Object Code Creation

The object code for this CPCI will be created by the system integration test team by using defined IISS Software Configuration Management procedures. This CPCI will use the COBOL language compilers.

3.9 Adaptation Data

This CPCI has been coded using ANSI COBOL language. The intent was to provide a transportable system. Any system environment supporting this language, a virtual memory management scheme, the ORACLE Database Management System should be able to support this CPCI. Every possible attempt has been made to localize and identify any machine or environment dependent modules through the original design of the IISS and application of Configuration Management Procedures.

3.10 Details Design Description

The following sections have been computer generated for this CPCI.

3.10.1 Where Include File Used List

The following lists each include file in the documentation group and all the modules documented in this specification which include them. The purpose of each module is listed as well.

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
--------------------------	-------------------------

ERRCDM

CD1RIT
CD2RIT
CDACAL
CDACAQ
CDATXL
CDCMD
CDEMD
CDEMDA
CDGTN
CDGTVW
CDINEC
CDKYUQ
CDMPIK
CDMQAL
CDNNEC
CDPBL
CDPDI
CDPRE4
CDPTEC
CDRCNR
CDRCTG
CDTGTVW
CDVIEW
CDVTGK

ERRFS

CD1RIT
CD2RIT
CDACAQ
CDCMD
CDEMD

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
--------------------------	-------------------------

	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDVIEW
	CDVTGK

EOD

	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK

TXLIST

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CD1RIT
	CDACAL
	CDACAQ
	CDATXL
	CDINEC
	CDKYUQ
	CDMPIK
	CDPRE4
	CDPTEC
	CDTGVW
	CDUTXL
	CDVTGK
ESAL	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDEMDA
	CDINEC
	CDKYUQ
	CDMQAL
	CDNNEC
	CDPRE4
	CDPTEC
	CDVTGK
ESQUAL	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDJUV

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
UVABBR	
	CD1RIT
	CD2RIT
	CDABVW
	CDACAQ
	CDGTVW
	CDINEC
	CDJUV
	CDKYUQ
	CDPRE4
CGTABLE	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
APL	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
RFTABLE	
	CD1RIT
	CD2RIT

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
BLSTACK	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
FORVAR	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
CSAL	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDINEC
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
CSQUAL	
	CD1RIT
	CD2RIT

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CDACAQ
	CDGTVW
	CDINEC
	CDKYUQ
	CDMQAL
	CDPBL
	CDPRE4
CURTAB	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
WHENTAB	
	CD1RIT
	CD2RIT
	CDACAQ
	CDINEC
	CDKYUQ
	CDPRE4
ERRPRO	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDATXL
	CDCMD
	CDEMD
	CDEMDA
	CDGTN

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDMQAL
	CDNNEC
	CDPBL
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
BOOLST	
	CD2RIT
	CDACAQ
	CDGTVW
	CDKYUQ
	CDPBL
	CDPRE4
NDMLSTK	
	CDEMDA
	CDPRE4
CHKCDM	
	CDMQAL
	CDPBL
CSQVAR	
	CDPRE4
DELCAT	

DOCGROUP PS41231 Where-include-file-used List

Include File -----	Module Name -----
	CDPRE4
TYP2TB	CDPRE4
TJLIST	CDPRE4

3.10.2 Where External Routine Used List

The following lists each external function or routine in the documentation group and all the documented modules which call it. The purpose of each module is listed as well.

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
SQLSCA	CD1RIT CD2RIT CDCMD CDEMD CDEMDA CDGTN CDGTVW CDINEC CDKYUQ CDMPIK CDNNEC CDPDI CDPRE4 CDPTEC CDRCNR CDRCTG CDTGVW CDVIEW CDVTGK
SQLBS1	CD1RIT CD2RIT CDCMD CDEMD CDEMDA CDGTN CDGTVW CDINEC CDKYUQ CDMPIK

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGTV
	CDVIEW
	CDVTGK
SQLSCH	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGTV
	CDVIEW
	CDVTGK
SQLSCC	
	CD1RIT

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLTFL	
	CD1RIT
	CDCMD
	CDEMD
	CDGTN
	CDGTVW
	CDPDI
	CDPRE4
	CDRCNR
	CDRCTG
	CDVIEW
	CDVTGK
SQLOPN	

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
---------------------------	-------------------------

	CD1RIT
	CDCMD
	CDEMD
	CDGTN
	CDGTVW
	CDPDI
	CDPRE4
	CDRCNR
	CDRCTG
	CDVIEW
	CDVTGK

SQLOSQ

	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPFE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
---------------------------	-------------------------

SQLADR

CD1RIT
CD2RIT
CDCMD
CDEMD
CDEMDA
CDGTN
CDGTVW
CDINEC
CDKYUQ
CDMPIK
CDNNEC
CDPDI
CDPRE4
CDPTEC
CDRCNR
CDRCTG
CDTGVW
CDVIEW
CDVTGK

SQLAB1

CD1RIT
CD2RIT
CDCMD
CDEMD
CDEMDA
CDGTN
CDGTVW
CDINEC
CDKYUQ
CDMPIK

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLEXE	
	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLAD1	
	CD1RIT

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGVW
	CDVIEW
	CDVTGK
SQLFCH	CD1RIT
	CD2RIT
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPDI

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGTV
	CDVIEW
	CDVTGK
ERRPRO	
	CD1RIT
	CD2RIT
	CDACAL
	CDACAQ
	CDATXL
	CDCMD
	CDEMD
	CDEMDA
	CDGTN
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDMQAL
	CDNNEC
	CDPBL
	CDPDI
	CDPRE4
	CDPTEC
	CDRCNR
	CDRCTG
	CDTGTV
	CDVIEW

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
SQLTOC	CDVTGK
	CD2RIT
	CDEMDA
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDTGVW
SQLCLS	
	CD2RIT
	CDEMDA
	CDGTVW
	CDINEC
	CDKYUQ
	CDMPIK
	CDNNEC
	CDPTEC
	CDTGVW
CDPRE5	
	CD2RIT
	CDACAQ
	CDKYUQ
	CDPRE4
CDCAT	
	CDACAL
RPTERR	
	CDEMD

DOCGROUP PS41231 Where-external-routine-used List

System Module -----	Module Name -----
	CDGTN
	CDJUV
	CDMPIK
	CDNNEC
	CDPRE4
	CDPTEC
	CDVIEW
	CDVNV
	CDVTGK
CDIDIU	
	CDPRE4
CD2NEC	
	CDPRE4
CDCRIT	
	CDPRE4
CDAUC	
	CDPRE4
CDERC	
	CDPRE4
CDASEL	
	CDPRE4
CDELIS	
	CDPRE4
CD2SEL	
	CDPRE4
CDZDEL	
	CDPRE4

3.10.3 Main Program Parts List

The following lists each Main Program in the documentation group and all the modules which are called either by that module itself or by any of the documented modules which it calls. It is possible for a non-main module to be listed more than once if it is called by multiple modules. The called modules, in this case known as program parts, are marked as to whether they are documented here. If so, the phrase "well-defined module" appears by the module name, if not it is an "external routine". The Purpose of the Main Program module is listed as well.

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
CD1RIT		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	CDACQ	Well-defined module
	ERRPRO	External routine
CD2RIT		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDPRE5	External routine
	CDCMD	Well-defined module

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	CDMQAL	Well-defined module
	CDPBL	Well-defined module
CDABVW		
CDACAL		
	ERRPRO	External routine
	CDCAT	External routine
CDACAQ		
	ERRPRO	External routine
	CDPRE5	External routine
	CDCMD	Well-defined module
	CDMQAL	Well-defined module
	CDPBL	Well-defined module
CDATXL		
	ERRPRO	External routine
CDCMD		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLQSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDEMD		
	SQLSCA	External routine
	SQLBS1	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTErr	External routine
CDEMDA	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
CDGTN	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine
CDGTVW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDCMD	External routine
CDINEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	QLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	CDACAQ	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
CDJUV		
	RPTERR	External routine
CDKYUQ		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	QLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	CDPRE5	External routine
	CDCMD	External routine
	CDMQAL	Well-defined module
	CDPBL	Well-defined module

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
CDMPIK		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	RPTERR	External routine
	CDGTN	External routine
CDMQAL		
	ERRPRO	External routine
CDNNEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLCLS	External routine
	RPTERR	External routine
CDPBL		
	ERRPRO	External routine
CDPDI		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDPRE4		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLOSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
ERRPRO		External routine
SQLTOC		External routine
CDPRE5		External routine
CDCMD		External routine
CDMQAL		External routine
CDPBL		External routine
RPTERR		External routine
CDGTVW		External routine
CDIDIU		External routine
CDVIEW		Well-defined module
CDABVW		External routine
CDEMDA		External routine
CDEMD		External routine
CDPDI		External routine
CDPTEC		Well-defined module
CDINEC		External routine
CD2NEC		External routine
CDKYUQ		External routine
CDACAL		External routine
CDNNEC		External routine
CDATXL		External routine
CDRCTG		Well-defined module
CDUTXL		Well-defined module
CDVTGK		Well-defined module
CDMPIK		External routine
CD1RIT		External routine
CDCRIT		External routine
CDJUV		External routine
CDAUC		External routine
CDTGUV		Well-defined module
CD2RIT		External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	CDERC	External routine
	CDASEL	External routine
	CDELIS	External routine
	CD2SEL	External routine
	CDZDEL	External routine
	CDVNV	Well-defined module
	CDRCNR	Well-defined module
CDPTEC		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	SQLTOC	External routine
	SQLCLS	External routine
	RPTERR	External routine
CDRCNR		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLSQ	External routine
	SQLADR	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDRCTG		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
CDTGVW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLEXE	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
	SQLTOC	External routine
	SQLCLS	External routine
	CDCMD	External routine
	CDATXL	External routine
CDUTXL		
CDVIEW		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLSQ	External routine
	SQLADR	External routine
	SQLAB1	External routine
	SQLXEX	External routine
	SQLAD1	External routine
	SQLFCH	External routine
	ERRPRO	External routine
	RPTERR	External routine
CDVNV		
	RPTERR	External routine
CDVTGK		
	SQLSCA	External routine
	SQLBS1	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLTFL	External routine
	SQLOPN	External routine
	SQLSQ	External routine
	SQLADR	External routine

DOCGROUP PS41231 Main Program Parts List

Main Pgm Name -----	Module Name -----	Module Type -----
SQLAB1	External	routine
SQLEXE	External	routine
SQLAD1	External	routine
SQLFCH	External	routine
ERRPRO	External	routine
RPTERR	External	routine

3.10.4 Module Documentation

The following documentation describes information which is specific to each individual module in the documentation group being documented in this specification. It provides a compact way of getting information that would be otherwise buried within each module's source code.

The specific items in this module documentation have the following meanings:

NAME:	Name of program Module.
PURPOSE:	Purpose of Module as detailed in the source code.
LANGUAGE:	Programming language source code is written in. The choices are: VAX-11 FORTRAN C (I/S-1 Workbench 'C') VAX-11 COBOL
MODULE TYPE:	Whether a Program, Subroutine, or Function.
SOURCE FILE:	Name of Source File from file specification.
SOURCE FILE TYPE:	Source File Extension from file specification.
HOST:	Whether this is a host-dependent routine (VAX or IBM) or blank if host-independent.
SUBSYSTEM:	IISS sub-system this file resides in.
SUBDIRECTORY:	Sub-directory of that subsystem in which this file resides.
DOCUMENTATION GROUP:	Name of documentation group of which this source file is a member.
DESCRIPTION:	A description of the module as obtained from the source code.
ARGUMENTS:	The arguments with which this routine is called if it is a Subroutine or a Function.
INCLUDE FILES:	A list of all the files that are included into this module as well as their purposes.
ROUTINES CALLED:	Subroutines or Functions, either documented or external, called by this module, if any.

CALLED DIRECTLY BY: The documented routines which call
this module, if any.

USED IN MAIN PROGRAM(S): The documented Main Programs which
contain this module in their parts
list according to the list in section
3.10.3.

The Module Documentation is arranged alphabetically according
to Module Name.

DOCGROUP PS41231 Module Documentation

NAME: CD1RIT
PURPOSE: PERFORMS SEARCH OF LINK_RELATION TO EXTRACT IND EC_NO
 FOR TYPE 1 R.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CD1RIT
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF LINK_RELATION TABLE TO EXTRACT THE
INDEPENDENT EC NO WHICH CORRESPONDS TO EACH TEMP-RC-NO. CALL
CDACAQ TO FILL ROWS OF CS-ACTION-LIST AND CS-QUALIFY-LIST
AND GENERATE A TYPE 1 REFERENTIAL INTEGRITY TEST.
MODIFIED FOR EMBEDDED SQL -- 19 MAY 1986
ADD LUW-NAME AS PASS-THROUGH PARAMETER -- 23 MAY 1986
CHANGED TO DO LOOKUPS INTO LINK RELATION -- 1 MAY 1989
FOR EACH NON-ZERO RELATION CLASS, OBTAIN ALL INDEPENDENT
ENTITY CLASS NUMBERS. FOR EACH UNIQUE INDEPENDENT
ENTITY CLASS NUMBER, CALL CDACAQ TO EVENTUALLY
GENERATE A TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD

FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
LUW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
APL
RFTABLE
BLSTACK
FORVAR

CSAL
CSQUAL
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
CDACAQ
ERRPRO

ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
BOOLEAN-LIST	RECRD
LW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ESAL
ESQUAL
UVABBR
CGTABLE

APL
RFTABLE
BLSTACK
FORVAR
CSAL
CSQUAL
BOOLST
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDABVW
PURPOSE: CDABVW-GET THE VIEW NUMBER GIVEN THE USER ENTERED
ABBREVIATION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDABVW
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

SCAN THE UV-ABBR-LIST SEARCHING FOR A UVABBR
MATCHING THE INPUT ARGUMENT, ABBREV. IF FOUND, RETURN
THE CORRESPONDING VIEW NUMBER AND UV-INDEX, OTHERWISE ZERO.

SCAN THE UV-ABBR-LIST FOR A UV-ABBR MATCHING ABBREV.
RETURN CORRESPONDING UV-NO AND INDEX.

ARGUMENTS:

ABBREV DSPLY[XX]
UV-ABBR-LIST RECRD
VIEW-NO DSPLY[S9(4)]
UV-PTR DSPLY[99]

INCLUDE FILES:

UVABBR

DOCGROUP PS41231 Module Documentation

NAME: CDACAL
PURPOSE: ADD ROWS TO THE CS-ACTION-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDACAL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL THE CS ACTION LIST FROM THE TEMP TRANSFORM LIST
INITIALIZE CS-DELETE-FLAG -- 16 MAY 1986
INITIALIZE CS-SOURCE -- 16 MAY 1986
DETERMINE IF ENTITY IS GENERIC AND SET NEW FLAG
CS-CATEGORY-FLAG IF AUC IS THE CATEGORY DISCRIMINATOR -10 APR
1989
MOVE ROWS, 1 AT A TIME, FROM THE TEMP TRANSFORM LIST
TO THE CS-ACTION-LIST. IF CSAL OVERFLOW, GENERATE
AN ERROR MESSAGE. CHECK EC-NO TO DETERMINE IF GENERIC
IF SO, RETRIEVE AUC OF CATEGORY DISCRIMINATOR.

ARGUMENTS:

TEMP-XFORM-LIST	RECRD
CS-ACTION-LIST	RECRD
ES-ACTION-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

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TXLIST
CSAL
ESAL
ERRPRO

ROUTINES CALLED:

CDCAT
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDACAQ
PURPOSE: ADD ROW TO CS ACTION LIST AND CS QUALIFY LIST AND
 TYPE 1 RIT
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDACAQ
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FOR THE FIRST TEMP-RC-NO ENTRY WHICH MATCHES THE INPUT
ARGUMENT, FILL IN A CS-ACTION ENTRY AND A CS QUALIFY ENTRY.
FOR EACH ADDITIONAL MATCH, FILL IN A CS QUALIFY ENTRY.
ELIMINATE CSQ DUPLICATES AND CALL CDPRE6 TO GENERATE A
TYPE 1 REFERENTIAL INTEGRITY TEST.
ADD BOOLEAN-LIST -- 21 MAY 1986
DELETE USER-ERROR-COUNT -- 21 MAY 1986
CHANGE NDML-COUNTER TO PIC9(6) -- 21 MAY 1986
DELETE LDA REFERENCES -- 21 MAY 1986
ADD CDMQAL AND CDPBL CALLS -- 21 MAY 1986
POPULATE 2 NEW CS-ACTION FIELDS
(CS-SOURCE AND CS-DELETE-FLAG) -- 21 MAY 1986
MODIFY CSQ DUPLICATE ELIMINATION LOGIC - 21 MAY 1986
ADD LUW-NAME AS PASS-THROUGH PARAMETER -- 23 MAY 1986
CHANGE CDPRE6 CALL TO CDPRE5 CALL -- 23 MAY 1986
MOVE U TO CSQ-SOURCE (CS-QUALIFY) -- 5 MAR 1987
CHECK FOR "V" IN CSQ-SOURCE BEFORE MOVING
COUNTER TO CSQ-VARIABLE -- 23 JUN 87
DELETED IOS-SECTION PARAMETER -- 2 MAY 1989
POPULATE THE FIRST CS ACTION ROW, AND AS MANY
CS QUALIFY ROWS AS THERE ARE TEMP-RC-NO'S

MATCHING THE INPUT PARAMETER RC-NO. AFTER ALL ACTION AND QUALIFY TABLE ENTRIES HAVE BEEN POPULATED, MOVE ALL AUC ENTRIES IN THE QUALIFY LIST WHICH AREN'T ALREADY ON THE ACTION LIST TO THE ACTION LIST. ALSO POPULATE THE BOOLEAN LIST. FINALLY, CALL CDPRE5 TO GENERATE THE TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

TEMP-XFORM-LIST
IND-EC-NO
RC-NO
ES-ACTION-LIST
ES-QUALIFY-LIST
UV-ABBR-LIST
CODE-GENERATOR-TABLE
FCB-1
FCB-2
FCB-3
FCB-4
MY-HOST
TARGET-HOST
SOURCE-LANGUAGE
FCB-E
NDML-COUNTER
CS-ACTION-LIST
CS-QUALIFY-LIST
MODEL-NO
LUW-NAME
ERROR-STATUS
RFT
JQG-ATTRIBUTE-PAIR-LIST
BLOCK-STACK
FIRST-INNER-SELECT
FORTRAN-VARIABLE-TABLE
SUB-LANG
EMBEDDED-LANGUAGE
CURSOR-TABLE

```
RECRD
DSPLY[S9(4)]
DSPLY[S9(4)]
```

WHENEVER-TABLE
RET-STATUS

INCLUDE FILES:

ERRCDM
ERRFS
BOOLST
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
BLSTACK
APL
RFTABLE
FORVAR
CSAL
CSQUAL
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDATXL
PURPOSE: ADD ROW TO TEMP-XFORM-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDATXL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL IN NEXT TEMP-XFORM LIST ENTRY WITH CORRESPONDING INPUT
PARAMETERS. ADJUST ROW-USED INDICATOR TO POINT TO LAST USED
ROW GUARDING AGAINST TABLE OVERFLOW.
CHANGE NDML-COUNTER TO 9(6) -- 19 MAY 1986
POPULATE NEXT ROW OF TEMP TRANSFORM LIST

ARGUMENTS:

EC-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
CS-TYPE	DSPLY[X]
CS-SIZE	DSPLY[999]
CS-ND	DSPLY[99]
ES-INDEX	DSPLY[99]
NDML-COUNTER	DSPLY[9(6)]
TEMP-XFORM-LIST	RECRD
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

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ERRCDM
TXLIST
ERRPRO

ROUTINES CALLED:

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDCMD
PURPOSE: EXTRACT CONCEPTUAL METADATA GIVEN THE TAG NUMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDCMD
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE WILL USE A TAG NUMBER OF AN ATTRIBUTE
USE CLASS AND ACCESS THE CDM FOR ITS CONCEPTUAL
TYPE, SIZE AND NUMBER OF DECIMAL DIGITS.

ROUTINE WAS MODIFIED TO USE EMBEDDED SQL 5/14/86
ROUTINE WAS MODIFIED NOT TO USE ORACLE
VIEW FOR RELEASE 2.3

-

SELECT THE PROPER DOMAIN GIVEN THE TAG NUMBER. SELECT TYPE,
SIZE AND
NUMBER OF DECIMAL DIGITS GIVEN THE DOMAIN.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TAG	DSPLY[S9(4)]
FCB-E	DSPLY[S9(9)]
EC-NO	DSPLY[S9(4)]
CS-TYPE	DSPLY[X]
CS-SIZE	DSPLY[999]
CS-ND	DSPLY[99]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDEMD
PURPOSE: RETRIEVE EXTERNAL METADATA AND DATA ITEM NUMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDEMD
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SELECT TO RETURN EXTERNAL METADATA (TYPE, SIZE,
NUMBER OF DECIMALS), AND THE DATA ITEM NUMBER GIVEN THE
VIEW NUMBER AND THE DATA ITEM NAME.
MODIFIED FOR EMBEDDED SQL -- 5/9/86
MODIFIED TO ACCEPT SOURCE-LANGUAGE PARAMETER AND CHECK
FOR F, C OR I DATA TYPE IF SOURCE LANGUAGE IS FORTRAN -- 3/5/87
SELECT DATA ITEM NUMBER, DATA TYPE, SIZE AND
NUMBER OF DECIMAL DIGITS FOR A PARTICULAR
DATA ITEM NAME WITHIN THE GIVEN VIEW. IF NOT
FOUND, GENERATE AN ERROR MESSAGE.

ARGUMENTS:

VIEW-NO DSPLY[S9(4)]
DI-NAME DSPLY[X(30)]
SOURCE-LANGUAGE DSPLY[X(10)]
FCB-E DSPLY[S9(9)]
DI-NO DSPLY[S9(4)]
ES-TYPE DSPLY[X]
ES-SIZE DSPLY[999]
ES-ND DSPLY[99]

RET-STATUS

DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

ERRFS

EOD

ERRPRO

ROUTINES CALLED:

SQLSCA

SQLBS1

SQLSCH

SQLSCC

SQLTFL

SQLOPN

SQLSQ

SQLADR

SQLAB1

SQLXEX

SQLAD1

SQLFCH

RPTERR

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDEMDA
PURPOSE: EXPAND ES ACTION LIST TO HOLD ALL DI NAMES FOR A
 USER VIEW
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDEMDA
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

EXTRACT DI NAMES FOR ALL DATA ITEMS IN A USER VIEW.
FOR EACH DI NAME EXTRACTED, MAKE AN ENTRY IN THE
ES ACTION LIST. FOR THE FIRST DI NAME EXTRACTED, EXPAND THE
LAST
USED ROW OF THE ES ACTION LIST. FOR EACH ADDITIONAL DI NAME,
FILL
IN A NEW ROW.
MODIFIED FOR EMBEDDED SQL 5/5/86
ADDED NEW PARAMETER NDMLSTK TO SOLVE ES-ACTION-LIST BUC
WHEN DOING SELECT ALL WITH CURLY BRACKET 07/31/90
EXTRACT ALL DATA ITEMS FOR THE GIVEN VIEW AND
INSERT THEM INTO THE ES-ACTION-LIST.

ARGUMENTS:

VIEW-NO	DSPLY[S9(4)]
ES-ACTION-LIST	RECRD
NDML-STACK	RECRD
RET-STATUS	DSPLY[X(5)]

• INCLUDE FILES:

•
ERRCDM
EOD
ESAL
NDMLSTK
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDGTN
PURPOSE: RETRIEVE TAG NAME.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDGTN
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

THIS ROUTINE RETRIEVES THE ENTITY CLASS NAME AND TAG
NAME GIVEN A TAG NUMBER.

ARGUMENTS:

FCB-E	DSPLY[S9(9)]
TAG-NO	DSPLY[S9(4)]
EC-NO	DSPLY[S9(4)]
TAG-NAME	DSPLY[X(30)]
EC-NAME	DSPLY[X(30)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDGTVW
PURPOSE: EXTRACT VIEW TYPE 2 FROM CDM AND POPULATE CSQ AND
 BOOLEAN
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDGTVW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE WILL SELECT TYPE 2'S
QUALIFICATIONS FOR A SPECIFIED VIEW FROM
VIEW_QUALIFY CRITERIA (CONDITION, TEXT TYPE
AND TEXT). IT POPULATES THE CS-QUALIFY AND
BOOLEAN LISTS. THIS ROUTINE IS CALLED FROM
CDPRE4 FOR SELECT, MODIFY, DELETE AND QUERY-
COMBINATION NDML ACTIONS.

-

ARGUMENTS:

MODEL-NO DSPLY[S9(4)]
UV-ABBR-LIST RECRD
CS-QUALIFY-LIST RECRD
BOOLEAN-LIST RECRD
NDML-ACTION DSPLY[X]
FCB-E DSPLY[S9(9)]
ERROR-STATUS DSPLY[9]
RET-STATUS DSPLY[X(5)]

• INCLUDE FILES:

ERRCDM
ERRFS
EOD
• UVABBR
CSQUAL
BOOLST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
SQLTFL
SQLOPN
CDCMD
SQLCLS
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDINEC
PURPOSE: RETRIEVE IND ENT FOR DEP ENT AND PERFORM TYPE1 REF
 INTEG TEST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDINEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF LINK_RELATION TABLE TO FIND ANY IN-
DEPENDENT ENTITY CLASSES. FOR EACH FOUND, CALL CDACAQ TO SET
UP TYPE 1 REFERENTIAL INTEGRITY TEST.
CONVERTED TO EMBEDDED SQL -- 14 MAY 1986
NDML-COUNTER MADE PIC 9(6)-- 14 MAY 1986
USER-ERROR-COUNT DELETED -- 14 MAY 1986
ADD LUW-NAME AS PASS THROUGH PARAMETER -- 22 MAY 1986
CONVERT TO CHECK OF LINK RELATION TABLE --- 10 APR 1989
PERFORM SQL SEARCH OF LINK RELATION TABLE FOR ALL
INDEPENDENT ENTITIES OF TEMP-EC-NO (1). FOR EACH
INDEPENDENT ENTITY FOUND, CALL CDACAQ TO GENERATE
A TYPE 1 REFERENTIAL INTEGRITY TEST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD

CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
LUW-NAME	DSPLY[X(30)]
ERROR-STATUS	DSPLY[9]
RFT	
JQG-ATTRIBUTE-PAIR-LIST	
BLOCK-STACK	
FIRST-INNER-SELECT	
FORTTRAN-VARIABLE-TABLE	
SUB-LANG	
EMBEDDED-LANGUAGE	
CURSOR-TABLE	
WHENEVER-TABLE	
RET-STATUS	

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ESQUAL
UVABBR
CGTABLE
CSAL
CSQUAL
RFTABLE

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APL
BLSTACK
FORVAR
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDACAQ
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDJUV
PURPOSE: VERIFY JOIN TO TARGET USER VIEW FOR DELETE AND MODIFY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDJUV
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

-

CDJUV ENSURES, THAT FOR A DELETE OR MODIFY WITH A USING
CLAUSE, THAT AT LEAST ONE OF THE "USING" VIEWS JOINS
BACK TO THE TARGET TABLE.
SEARCH BOTH RIGHT AND LEFT SIDES OF THE ESQ TRYING
TO MATCH ESQ-UV-ABRR AND ABRRL WITH UV-ABRR(1).
IF A MATCH IS FOUND, CHECK IF THE OPPOSITE SIDE
CONTAINS A VIEW REFERENCE NOT EQUAL TO THE TARGET
VIEW. IF NO JOINS TO THE TARGET VIEW ARE FOUND,
GENERATE AN ERROR MESSAGE.

ARGUMENTS:

UV-ABRR-LIST
ES-QUALIFY-LIST
FCB-E
ERROR-STATUS

INCLUDE FILES:

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UVABBR
ESQUAL

ROUTINES CALLED:

RPTERR

DOCGROUP PS41231 Module Documentation

NAME: CDKYUQ
PURPOSE: SET UP KEY UNIQUENESS TEST FOR AN ENTITY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDKYUQ
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FILL IN NEXT ROW OF CS-ACTION-LIST FOR EVERY UNIQUE KC-NO
RETURNED. FILL IN NEXT ROW OF CS-QUALIFY-LIST FOR EVERY
ROW RETURNED. ELIMINATE ALL DUPLICATE CS-QUALIFY ENTRIES.
FOR EACH UNIQUE KC-NO, GENERATE KEY UNIQUENESS TEST.
CONVERT TO EMBEDDED SQL -- 15 MAY 1986
ADD CDMQAL CALL -- 15 MAY 1986
ADD CDPBL CALL -- 15 MAY 1986
ENHANCE CSQ DUPLICATE ELIMINATION LOGIC -- 15 MAY 1986
ADD LUW-NAME AS CDPRE5 PASS-THROUGH PARAMETER -- 22 MAY 1986
CHANGE ALL CDPRE6 CALLS TO CDPRE5 -- 23 MAY 1986
MOVE SPACES TO NEW FIELD IN CS-QUALIFY -- 3 MAR 1987
CHECK FOR "V" IN CSQ-SOURCE BEFORE INSERTING COUNTER
IN CSQ-VARIABLE FIELD
SET UP A KEY UNIQUENESS TEST FOR EACH UNIQUE KEY
KEY CLASS BY POPULATING BOTH THE CS ACTION AND
QUALIFY LISTS. POPULATE A COMPLETELY NEW BOOLEAN
LIST (CDPBL) AND MOVE ANY CS-QUALIFY ENTRIES
NOT IN THE CS-ACTION-LIST TO THE CS-ACTION-LIST
(CDMQAL) PRIOR TO THE CDPRE5 CALL.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
NDML-COUNTER	DSPLY[9(6)]
CS-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
ES-ACTION-LIST	RECRD
ES-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CODE-GENERATOR-TABLE	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
LUW-NAME	DSPLY[X(30)]
RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS

EOD
BOOLST
TXLIST
CSAL
CSQUAL
ESAL
ESQUAL
UVABBR
CGTABLE
APL
RFTABLE
BLSTACK
FORVAR
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDPRE5
CDCMD
CDMQAL
CDPBL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDMPIK
PURPOSE: CHECK FOR MODIFICATION OF PARTIAL INHERITED KEY
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDMPIK
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

FOR EACH UNIQUE RC-NO IN THE TEMP XFORM LIST, SELECT THE
TAG-NOS FROM INHERITED ATT USE WHERE THE RC NOS ARE EQUAL.
FOR EACH TAG-NO SELECTED, SEARCH THE TEMP XFORM LIST FOR
A MATCH. IF FOUND, OK; OTHERWISE GENERATE ERROR MESSAGE.
CONVERTED TO EMBEDDED SQL -- 20 MAY 1986
IMPROVED ERROR HANDLING -- 20 MAY 1986
FOR EACH INHERITED TAG TO BE MODIFIED, CDMPIK MUST
INSURE THAT ALL OF THE OTHER INHERITED TAGS FROM THE
SAME KEY CLASS ARE ALSO TO BE MODIFIED. IF NOT,
THE ERROR MESSAGE MUST IDENTIFY THE MISSING
INHERITED ATTRIBUTES.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

◆ INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDGTN
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDMQAL
PURPOSE: BUILD ES/CS ACTION LIST ENTRIES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDMQAL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE PLACES ES-QUALIFY AND/OR
CS-QUALIFY ENTRIES WHICH ARE NOT REPRESENTED IN THE
ES-ACTION-LIST AND CS-ACTION-LIST RESPECTIVELY ON
THOSE LISTS IN SUPPORT OF CONCEPTUAL EVALUATION
OF THOSE QUALIFY ENTRIES NOT INTERNALLY EVALUATABLE.
-

ARGUMENTS:

ES-ACTION-LIST RECRD
ES-QUALIFY-LIST RECRD
CS-ACTION-LIST RECRD
CS-QUALIFY-LIST RECRD
RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

CHKCDM
ERRCDM
ESQUAL

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• CSAL
CSQUAL
ESAL
ERRPRO

• ROUTINES CALLED:

ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDNNEC
PURPOSE: DETERMINE IF THE VIEW OR DATA ITEMS MAP TO MULTIPLE
 ENTITY CLASSES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDNNEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

CHECK VIEW_EC_XREF TO SEE IF VIEW IS MAPPED TO MORE
THAN ONE ENTITY
ROUTINE CHANGED FROM COB TO PCO FOR CREATE VIEW
ENHANCEMENTS - REL 2.3
CHECK VIEW-EC-XREF FOR MORE THAN ONE EC-NO.
IF MORE THAN ONE EXISTS, GENERATE
AN ERROR MESSAGE APPROPRIATE TO THE ES-ACTION.

ARGUMENTS:

USER-VIEW-NO	DSPLY[S9(4)]
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

ERRFS
EOD
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
SQLCLS
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDPBL
PURPOSE: POPULATE BOOLEAN LIST.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPBL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

- THIS ROUTINE, FOR TYPE 1 REFERENTIAL
INTEGRITY AND KEY UNIQUENESS TESTS, BUILDS A COMPLETE
BOOLEAN LIST. FOR SELECTS, MODIFYS, DELETES AND TYPE
2 REFERENTIAL INTEGRITY TESTS, THIS ROUTINE POPULATES
BL-ESQ-PTR'S AND BL-CS-PTR'S.

MODIFIED TO ADD TO BOOLEAN LIST FOR TYPE 2'S WHICH WERE
RETRIEVED FROM VIEW_QUALIFY_CRITERIA
JUN 1989 - MODIFIED TO ADD CSAL CODES FOR CATEGORY DELETE
-

ARGUMENTS:

ES-QUALIFY-LIST RECRD
CS-QUALIFY-LIST RECRD
CS-ACTION-LIST RECRD
BOOLEAN-LIST RECRD
RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

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CHKCDM
ERRCDM
ESQUAL
BOOLST
CSAL
CSQUAL
ERRPRO

ROUTINES CALLED:

ERRPRO

INCLUDE FILES:

ERRCDM
EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDPRE4
PURPOSE: EXTERNAL SCHEMA/CONCEPTUAL SCHEMA TRANSFORMATION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPRE4
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

THE FUNCTION OF THIS EXTERNAL-SCHEMA-TO-CONCEPTUAL-SCHEMA TRANSFORMER IS TO CONVERT AN NDML REQUEST EXPRESSED IN EXTERNAL SCHEMA TERMS INTO ONE OR MORE NDML REQUESTS EXPRESSED IN CONCEPTUAL SCHEMA TERMS. THE CONVERSION INVOLVES TRANSLATING EACH USER VIEW INTO THE CORRESPONDING ENTITY CLASSES AND EACH DATA ITEM INTO THE CORRESPONDING ATTRIBUTE USE CLASSES. IT ALSO INVOLVES IDENTIFYING THE RELATIONAL JOIN OPERATIONS THAT ARE NEEDED TO CONSTRUCT EACH USER VIEW TABLE FROM THE ENTITY CLASS TABLES AND IDENTIFYING THE INTEGRITY TESTS THAT WILL BE EMPLOYED WITH EACH NDML UPDATE REQUEST. THIS IMPLEMENTATION WILL NOT SUPPORT DERIVED DATA ITEMS.

CONVERT TO EMBEDDED SQL -- 10 JUNE 1986
DELETE SEC-DECOMPOSITION-LIST -- 10 JUNE 1986
DELETE CE-WORK-LIST -- 10 JUNE 1986
MAKE CS-ACTION-LIST AN OUTPUT PARAMETER -- 10 JUNE 1986
ADD USER-MOD-ID, LUW-NAME AND BOOLEAN-LIST AS
INPUT PARAMETERS -- 10 JUNE 1986
MAKE NDML-COUNTER PIC 9(6) AND INPUT/OUTPUT PARAMETER --
10 JUNE 1986
DELETE USER-ERROR-COUNT REFERENCES -- 10 JUNE 1986
ADD CHECK FOR MODIFYS AND DELETES WITH USING CLAUSES

TO ENSURE THAT THE TARGET VIEW IS JOINED TO --
ADD LOGIC TO MOVE CS QUALIFICATIONS TO THE CS ACTION
LIST IN SUPPORT OF COMPLEX MAPPING -- 10 JUNE 1986
ADD LOGIC TO CREATE OR ADD TO THE BOOLEAN LIST --
ADD LOGIC TO UPDATE THE CDM CROSS REFERENCE -- 10 JUNE 1986
ADD CHECK TO INSURE THAT USED ES-VALUES ARE NUMERIC
WHEN THE DATA TYPE IS NUMERIC -- 10 JUNE 1986
POPULATE CSQ-VARIABLE ONLY WHEN ESQ-UV-ABBRR IS BLANK
-- 10 JUNE 1986
CHECK THAT LEFT AND RIGHT SIDE QUALIFY TYPES ARE
COMPATABLE -- 10 JUNE 1986
CHANGE INITIALIZATION OF TEMP-XFORM-LIST, CS-QUALIFY-LIST,
CS-ACTION-LIST AND TEMP-JOIN-LIST -- 27 FEB 87
CHANGE CALL TO CDVIEW TO RETRIEVE DISTINCT_IND. IF USER
DID NOT SPECIFY 'DISTINCT' BUT ONE VIEW IS DISTINCTED,
THEN ES-DISTINCT-FLAG IS SET TO 'Y' - 25 FEB 87
ADD CALL TO CDGTWV TO PICK UP TYPE 2 QUALIFICATIONS
FROM VIEW_QUALIFY_CRITERIA AND ADD TO CS-QUALIFY AND
ADD TO THE BOOLEAN LIST FOR DELETE, MODIFY, SELECT
AND QUERY-COMBINATION ACTIONS -- 25 FEB 87
CHANGED LOGIC IN DECOMPOSE-USER-VIEW (STEP 9) (SELECT AND
QUERY-COMBINATION ACTIONS) TO RETRIEVE THE
TYPE 3 QUALIFICATIONS FROM VIEW_QUALIFY_CRITERIA
FOR A SPECIFIC VIEW AND BUILD THE TEMP-JOIN-LIST USING
THE TAG NUMBERS RETRIEVED - 25 FEB 87
CHANGE TO SET A NEW FIELD IN CS-QUALIFY (CSQ-SOURCE) TO
'V' IF INFORMATION IS FROM VIEW_QUALIFY_CRITERIA, ELSE
SET TO 'U' -- 25 FEB 87
CHANGE PARAMETERS TO CALL "CDNNEC" WHICH WAS CHANGED
FROM COB TO PCO -- 25 FEB 87
CHANGE PARAMETERS TO CALL "CDEMD" -- 25 FEB 87
15-jul-87 -- after all view "joins" have been retrieved, and
populated, delete any csq entries which have the left auc
equal the right auc. this could happen if views are made
up from the same entity(s) 10.5
2 MAY -1989 -- ADD PROCESSING TO SUPPORT IDEF1X AS FOLLOWS:
INSERT - ADD CALL TO CD2NEC TO LOOK UP INTO CATEGORY RELATION
MODIFY - ADD CALL TO CDAUC TO DETERMINE IF CATEGORY
DISCRIMINATOR IS BEING MODIFIED.
ADD CALL TO CDCRIT TO LOOK UP INTO CATEGORY RELATION

FOR TYPE 1.
DELETE - ADD CALL TO CDERC TO DETERMINE IF ENTITY IS GENERIC
IF ENTITY IS NOT GENERIC - FOLLOWING CALLS ARE BY PASSED:
ADD CALL TO CDASEL FOR SELECT FOR CASCADE IF ENTITY
IS GENERIC.
ADD CALL TO CDELIS TO BUILD LIST OF TYPE 2'S AND
LIST OF ENTITIES FOR CASCADE DELETE
ADD CALL TO CD2SEL TO BUILD TYPE 2'S
ADD CALL TO CDZDEL TO BUILD CASCADE DELETES
2 MAY 1989 - ADD A NEW ROW TO TEMP-XFORM-LIST TO HOLD
CATEGORY TYPE
ADD A NEW .INC TO HOLD TABLE OF ECS FROM WHICH TO
BUILD TYPE 2'S FOR CASCADE DELETE
ADD A NEW .INC TO HOLD TABLE OF ENTITIES TO BE
DELETED FOR CASCADE DELETE.
ADD A NEW CS-QUALIFY CLONE TO HOLD CS-QUALIFICATIONS
FOR CASCADE DELETE SO AS NOT TO DESTROY USER'S
QUALIFICATIONS.

ARGUMENTS:

ES-QUALIFY-LIST	RECRD
ES-ACTION-LIST	RECRD
CS-QUALIFY-LIST	RECRD
UV-ABBR-LIST	RECRD
CS-ACTION-LIST	RECRD
FCB-1	DSPLY[S9(9)]
FCB-2	DSPLY[S9(9)]
FCB-3	DSPLY[S9(9)]
FCB-4	DSPLY[S9(9)]
FCB-E	DSPLY[S9(9)]
MY-HOST	DSPLY[XXX]
TARGET-HOST	DSPLY[XXX]
SOURCE-LANGUAGE	DSPLY[X(10)]
CODE-GENERATOR-TABLE	RECRD
USER-MOD-ID	DSPLY[X(10)]
LUW-NAME	DSPLY[X(30)]
NDML-COUNTER	DSPLY[9(6)]
BOOLEAN-LIST	RECRD

RFT	RECRD
JQG-ATTRIBUTE-PAIR-LIST	RECRD
BLOCK-STACK	RECRD
NDML-STACK	RECRD
FIRST-INNER-SELECT	DSPLY[9]
FORTTRAN-VARIABLE-TABLE	RECRD
SUB-LANG	DSPLY[X(10)]
EMBEDDED-LANGUAGE	DSPLY[X(10)]
CURSOR-TABLE	RECRD
WHENEVER-TABLE	
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
CSQVAR
DELCAT
TYP2TB
EOD
TJLIST
TXLIST
NDMLSTK
BLSTACK
ESQUAL
ESAL
CSQUAL
UVABBR
CSAL
APL
RFTABLE
FORVAR
CGTABLE
BOOLST
CURTAB
WHENTAB
ERRPRO

ROUTINES CALLED:

RPTERR
CDGTVW
CDMQAL
CDPBL
CDPRE5
CDIDIU
ERRPRO
CDVIEW
CDABVW
CDEMDA
CDEMD
CDPDI
CDCMD
CDPTEC
CDINEC
CD2NEC
CDKYUQ
CDACAL
CDNNEC
CDATXL
CDRCTG
CDUTXL
CDVTGK
CDMPIK
CD1RIT
CDCRIT
CDJUV
CDAUC
CDTGVW
CD2RIT
CDERC
CDASEL
CDELIS
CD2SEL
CDZDEL

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CDVNV
CDRCNR
SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLADR
SQLAD1
SQLFCH
SQLTFL
SQLOPN
SQLOSQ
SQLAB1
SQLEXE
SQLTOC

DOCGROUP PS41231 Module Documentation

NAME: CDPTEC
PURPOSE: DETERMINE WHETHER VIEW MAPS TO PART OF AN ENTITY
CLASS
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDPTEC
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

INSURE THAT TAG NUMBER EXTRACTED FROM ATTRIBUTE_USE_CL
MATCHES AT LEAST 1 TEMP-AUC, OTHERWISE, ERROR.
CONVERTED TO EMBEDDED SQL, ALL USER-ERROR-COUNT
REFERENCES DELETED -- 14 MAY 1986
FOR EACH TAG BELONGING TO AN ENTITY CLASS,
FIND IF IT IS EQUAL TO AT LEAST ONE TEMP-AUC.
IF NOT, GENERATE AN ERROR MESSAGE APPROPRIATE
TO THE ES-ACTION.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD
TXLIST
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
RPTERR
SQLAD1
SQLFCH
ERRPRO

EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDRCTG
PURPOSE: GET THE RC AND OWNER TAG OF AN INHERITED ATTRIBUTE
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDRCTG
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF THE INHERITED-ATT-USE TABLE LOOKING
FOR RELATION CLASS NUMBER AND KEY CLASS MEMBER TAG NUMBER
WHERE THE TAG NUMBER MATCHES THE INPUT PARAMETER.
CONVERTED TO EMBEDDED SQL -- 19 MAY 1986
ADD RETRIEVAL OF RELATION TYPE -- 2 MAY 1989
PERFORM 1-ROW SELECT OF RC NUMBER AND KCM TAG NUMBER
GIVEN THE TAG NUMBER. PERFORM STANDARD ERROR HANDLING.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TAG-NO	DSPLY[S9(4)]
RC-NO	DSPLY[S9(4)]
KCM-TAG-NO	DSPLY[S9(4)]
RELATION-TYPE	DSPLY[X(30)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

EOD
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDTGVW
PURPOSE: RETRIEVE ALL TAGS TO WHICH A VIEW MAPS
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDTGVW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

SELECT ALL TAGS FOR A VIEW, RETRIEVE CONCEPTUAL METADATA AND
FILL IN
A ROW OF THE TEMP-XFORM-LIST FOR EACH TAG SELECTED.
CONVERT TO EMBEDDED SQL -- 2 JUNE 1986
MODIFY NDML-COUNTER TO PIC 9(6) -- 2 JUNE 1986
DELETE USER-ERROR-COUNT AS OUTPUT PARAMETER -- 2 JUNE 1986
SEARCH PROJECT DATA ITEM FOR ALL TAGS IN THE GIVEN
VIEW. FOR EACH TAG, EXTRACT CONCEPTUAL METADATA AND
FILL IN A NEW ROW OF THE TEMP-XFORM-LIST.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
VIEW-NO	DSPLY[S9(4)]
ES-INDEX	DSPLY[99]
NDML-COUNTER	DSPLY[9(6)]
ERROR-FILE	DSPLY[X(30)]
TEMP-XFORM-LIST	RECRD
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
EOD
TXLIST
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLCLS
SQLAD1
SQLFCH
CDCMD
CDATXL
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDUTXL
PURPOSE: UPDATE A ROW OF THE TEMP-XFORM-LIST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDUTXL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

UPDATE THE TEMP-RC-NO AND THE TEMP-KCM-TAG-NO AND TEMP-RELATION
ENTRIES OF
THE CURRENT ROW OF THE TEMP-XFORM-LIST WITH THE INPUT
PARAMETERS.
MODIFY FOR TEMP TRANSFORM LIST EXPANSION -- 19 MAY 1986
MODIFY FOR TEMP TRANSFORM LIST CHANGE TO INCLUDE RELATION TYPE=
2 MAY 1989
UPDATE THE CURRENT TEMP-RC-NO AND TEMP-KCM-TAG-NO.

ARGUMENTS:

RC-NO	DSPLY[S9(4)]
KCM-TAG-NO	DSPLY[S9(4)]
RELATION-TYPE	DSPLY[X(10)]
TEMP-XFORM-LIST	RECRD

INCLUDE FILES:

TXLIST

DOCGROUP PS41231 Module Documentation

NAME: CDVIEW
PURPOSE: VERIFY THE EXISTENCE OF A VIEW IN THE CDM
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVIEW
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF TABLE SEC TO VERIFY A VIEW
GIVEN THE VIEW NAME. THE VIEW NUMBER IS RETURNED. IF THE VIEW
DOESN'T EXIST, 0 IS RETURNED AS THE VIEW NUMBER.

MODIFIED TO EMBEDDED SQL - 5/5/86
SEARCH FOR USER VIEW NUMBER GIVEN USER VIEW NAME.
IF NOT FOUND, GENERATE ERROR MESSAGE.

ARGUMENTS:

VIEW-NAME DSPLY[X(30)]
FCB-E DSPLY[S9(9)]
VIEW-NO DSPLY[S9(4)]
DISTINCT-IND DSPLY[X]
RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRFS
EOD

ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

DOCGROUP PS41231 Module Documentation

NAME: CDVNV
PURPOSE: CDVNV - VERIFY A NUMERIC VALUE
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVNV
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

-

FUNCTION CDVNV VALIDATES A CHARACTER STRING TO DETERMINE WHETHER IT IS NUMERIC. THE FOLLOWING RULES ARE APPLIED:

1. A SIGN, IF PRESENT, MUST BE EITHER "+" OR "-" AND MUST IMMEDIATELY PRECEED A DECIMAL DIGIT OR DECIMAL POINT.
2. THE NUMBER, INCLUDING SIGN, DOES NOT HAVE TO BE LEFT JUSTIFIED IN THE FIELD, AS LONG AS THERE ARE NO EMBEDDED BLANKS.
3. THERE MAY BE, AT MOST, ONE DECIMAL POINT.
4. A DECIMAL NUMBER MUST EITHER PRECEED OR FOLLOW THE DECIMAL POINT. A DECIMAL NUMBER MAY BOTH PRECEED AND FOLLOW THE DECIMAL POINT.
5. AT LEAST ONE DECIMAL DIGIT MUST APPEAR IN THE NUMBER. IF VIOLATIONS OF THE ABOVE RULES OCCURS, AN ERROR MESSAGE IS GENERATED.

APPLY RULES 1 THROUGH 5. GENERATE FATAL ERROR MESSAGE IF NECESSARY.

ARGUMENTS:

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VALUE-IN
DATA-ITEM
FCB-E
ERROR-STATUS

RECRD
DSPLY[X(30)]
DSPLY[S9(9)]
DSPLY[9]

ROUTINES CALLED:

RPTERR

DOCGROUP PS41231 Module Documentation

NAME: CDVTGK
PURPOSE: VERIFY THAT A TEMP-AUC IS NOT A KEY CLASS MEMBER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDVTGK
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:

PERFORM SQL SEARCH OF KEY_CLASS_MEMBER ON ALL TEMP-AUCS TO
VERIFY
THAT THE TAG IS NOT A KEY CLASS MEMBER
CONVERTED TO EMBEDDED SQL -- 19 MAY 1986
PERFORM SINGLE-ROW SELECT OF ALL TEMP TAGS TO
VERIFY THAT THEY ARE NOT MEMBERS OF THE
KEY CLASS MEMBER TABLE. IF FOUND, GENERATE AN
ERROR MESSAGE.

ARGUMENTS:

MODEL-NO	DSPLY[S9(4)]
TEMP-XFORM-LIST	RECRD
ES-ACTION-LIST	RECRD
FCB-E	DSPLY[S9(9)]
ERROR-STATUS	DSPLY[9]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM

ERRFS
EOD
TXLIST
ESAL
ERRPRO

ROUTINES CALLED:

SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTFL
SQLOPN
SQLOSQ
SQLADR
SQLAB1
SQLEXE
SQLAD1
SQLFCH
RPTERR
ERRPRO

3.10.5 Include File Descriptions

The following list contains a purpose and description of each include file in the documentation group as specified in the source code. The language it is written in is also given.

DOCGROUP PS41231 Include File Description

FILE NAME: APL
PURPOSE: JOIN QUERY ATTRIBUTE PAIR LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS INFORMATION ABOUT THE JOIN
ATTRIBUTES FOR NDML SUBTRANSACTIONS

DOCGROUP PS41231 Include File Description

FILE NAME: BLSTACK
PURPOSE: EXTERNAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS EXTERNAL SCHEMA INFORMATION FOR THE NDML
QUALIFICATION

THE EXTERNAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: BOOLST
PURPOSE: BOOLEAN LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS THE BOOLEAN OPERATORS, PARENTHESES, AND
POINTERS TO THE TYPE 2 CONDITIONS FOR AN NDML
TRANSACTION

DOCGROUP PS41231 Include File Description

FILE NAME: CGTABLE
PURPOSE: CODE GENERATING TABLE- TRACKS ALL GENERATED SOFTWARE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

HOLDS PERTINENT RESULTS
ABOUT ALL CODE GENERATED OR MODIFIED BY THE
PRECOMPILER

DOCGROUP PS41231 Include File Description

FILE NAME: CHKCDM
PURPOSE: IISS CDMP CHECK STATUS CODES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL STATUS CODES FOR THE
CDMP MODULES

*
*

DOCGROUP PS41231 Include File Description

•
FILE NAME: CSAL
PURPOSE: CONCEPTUAL SCHEMA ACTION LIST
LANGUAGE: VAX-11 COBOL

•
DESCRIPTION:

TABLE TO HOLD CONCEPTUAL DATA ABOUT THE REQUEST

NOTE!!!!!! This table is cloned in both cdpre5 and cdpre4

DOCGROUP PS41231 Include File Description

FILE NAME: CSQUAL
PURPOSE: CONCEPTUAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS CONCEPTUAL SCHEMA INFORMATION FOR
THE REQUEST'S QUALIFICATION

NOTE!!!!

This table is cloned as CSQUALX in CDPRE4. If it
is changed, CSQUALX must be changed also.

THE CONCEPTUAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: CSQVAR
PURPOSE: SQL END OF DATA DEFINITION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

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DOCGROUP PS41231 Include File Description

FILE NAME: CURTAB
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: EOD
PURPOSE: SQL END OF DATA DEFINITION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

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DOCGROUP PS41231 Include File Description

FILE NAME: ERRCDM
PURPOSE: IISS ERROR STATUS CODES FOR CDMP MODULES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL ERROR CODES USED BY CDMP *
MODULES FOR ERROR HANDLING *

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DOCGROUP PS41231 Include File Description

FILE NAME: ERRFS
PURPOSE: ERRFS.INC - FILE I/O PRIMITIVES (FILE SERVICES)
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

IISS ERROR CODES

THIS FILE DEFINES THE FS STATUS
CODES IN COBOL FORMAT

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DOCGROUP PS41231 Include File Description

FILE NAME: ERRPRO
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

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DOCGROUP PS41231 Include File Description

FILE NAME: ESAL
PURPOSE: EXTERNAL SCHEMA ACTION LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS THE EXTERNAL SCHEMA INFORMATION FOR AN
NDML REQUEST

THE EXTERNAL SCHEMA ACTION LIST

DOCGROUP PS41231 Include File Description

FILE NAME: ESQUAL
PURPOSE: EXTERNAL SCHEMA QUALIFY LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS EXTERNAL SCHEMA INFORMATION FOR THE NDML
QUALIFICATION

THE EXTERNAL SCHEMA QUALIFY LIST

DOCGROUP PS41231 Include File Description

FILE NAME: FORVAR
PURPOSE: FORTRAN VARIABLE TABLE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS TABLE HOLDS THE ORIGINAL FORTRAN VARIABLE
AND ITS GENERATED SIX-CHARACTER COUNTERPART.

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DOCGROUP PS41231 Include File Description

FILE NAME: NDMLSTK
PURPOSE: NDML COMMAND NESTING INFORMATION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

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DOCGROUP PS41231 Include File Description

FILE NAME: RFTABLE
PURPOSE: THE RESULT FIELD TABLE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41231 Include File Description

FILE NAME: TJLIST
PURPOSE: TEMP JOIN LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS WILL TEMPORARILY STORE META-DATA ABOUT
JOINED ENTITY CLASSES MAKING UP A USER VIEW

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DOCGROUP PS41231 Include File Description

FILE NAME: TXLIST
PURPOSE: TEMP TRANSFORM LIST
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS WILL TEMPORARILY STORE METADATA ABOUT AN
NDML UPDATE REQUEST EXPRESSED IN CS TERMS
(INTERNAL TO PRE4)

DOCGROUP PS41231 Include File Description

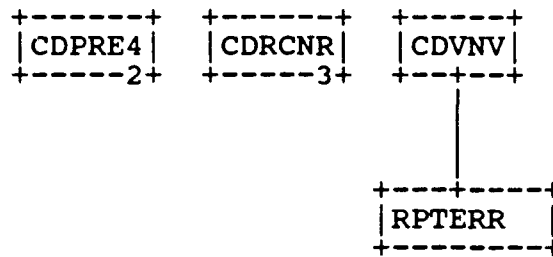
FILE NAME: UVABBR
PURPOSE: USER VIEW ABBREVIATION LIST
LANGUAGE: VAX-11 COBOL

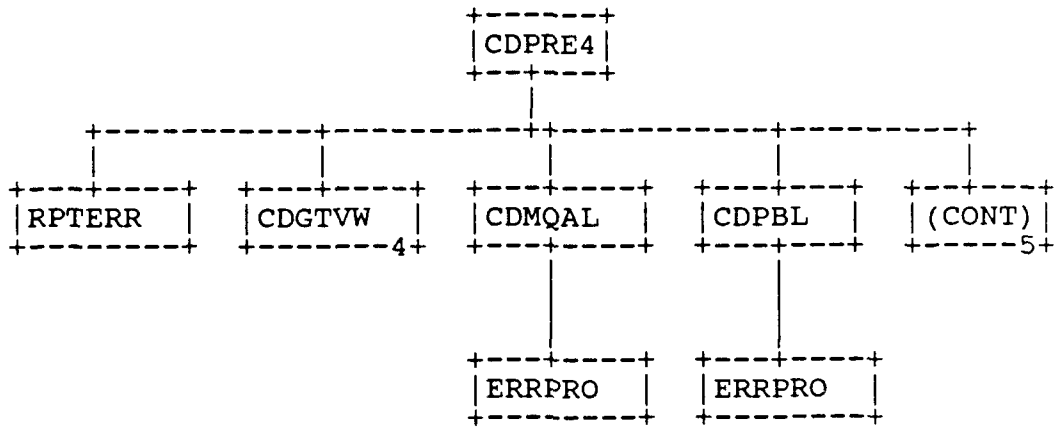
DESCRIPTION:

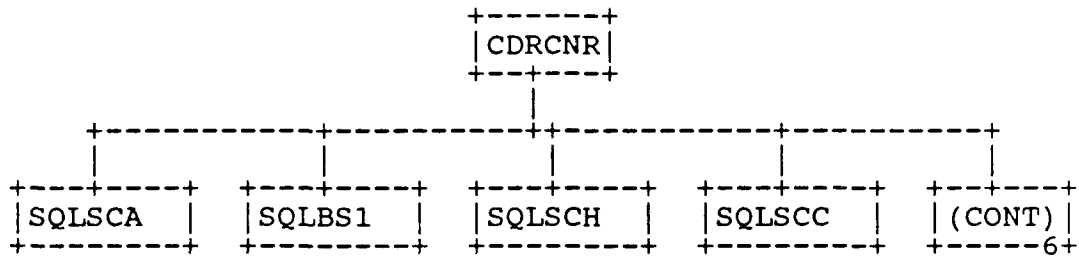
CONTAINS THE ABBREVIATIONS FOR ALL USER
VIEW REFERENCED IN THE NDML REQUEST

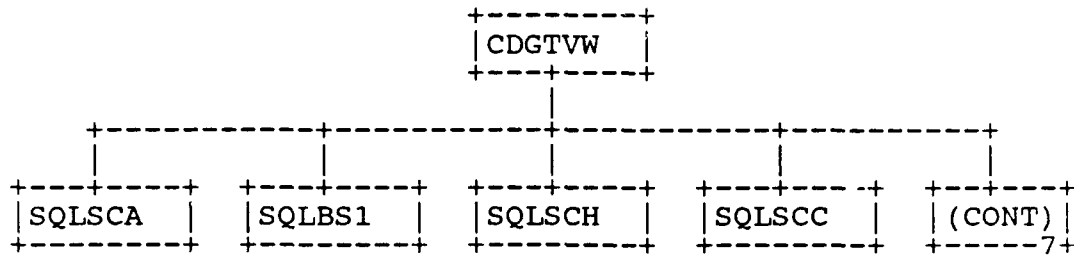
3.10.6 Hierarchy Chart

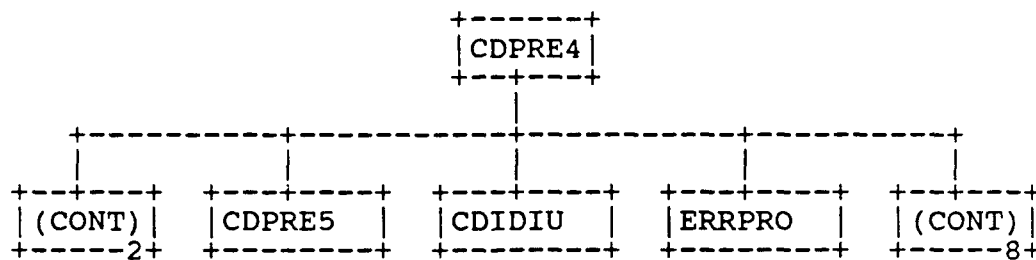
1

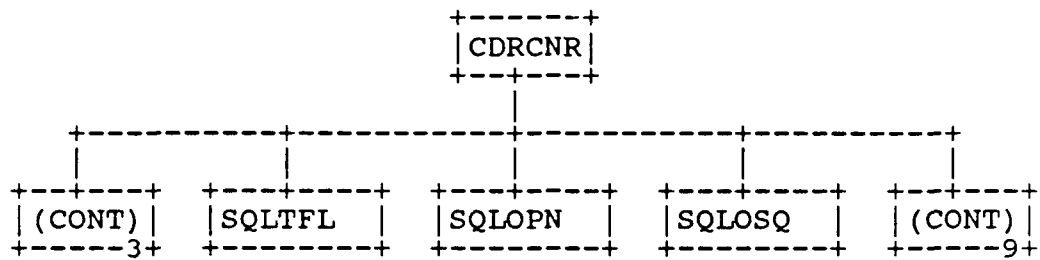


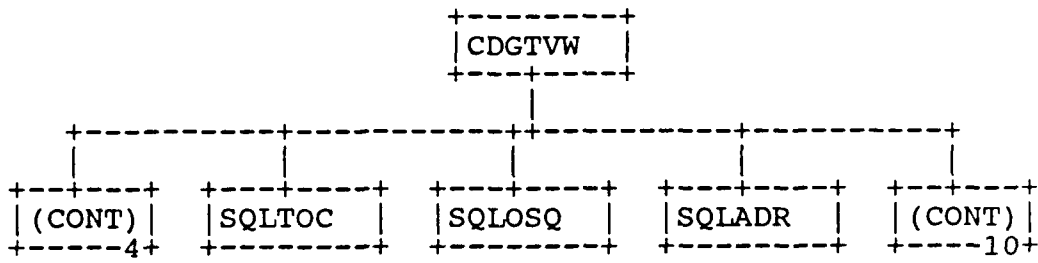


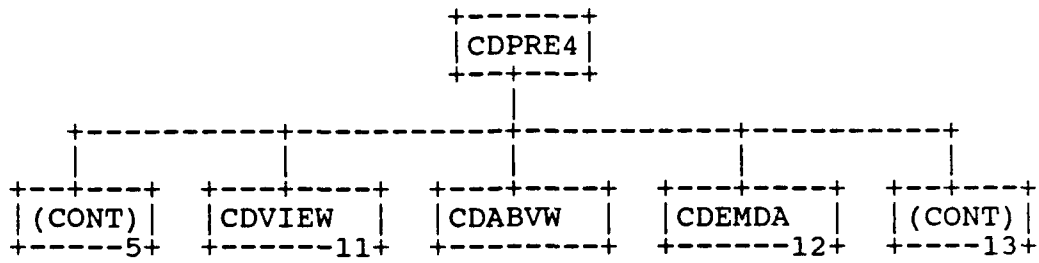


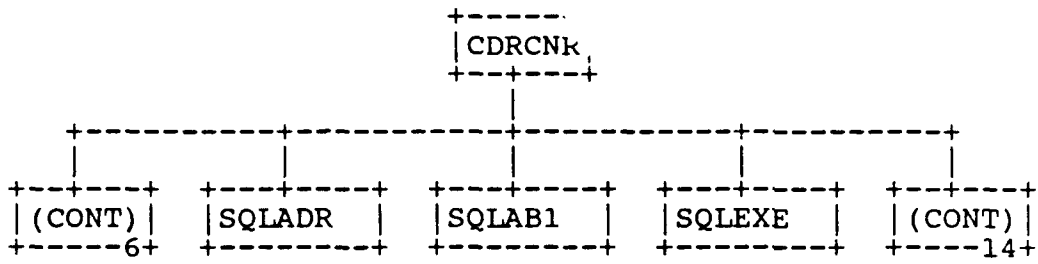


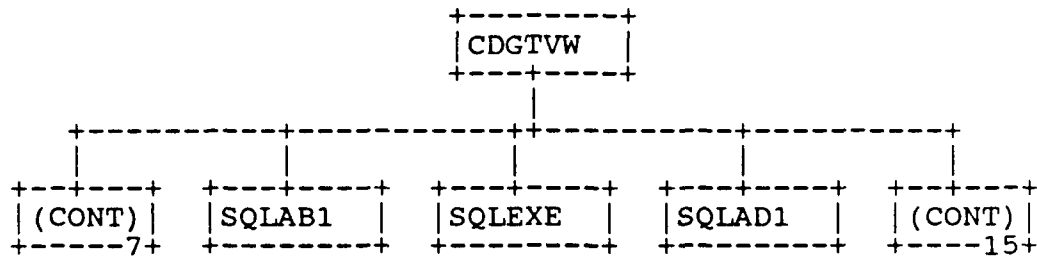


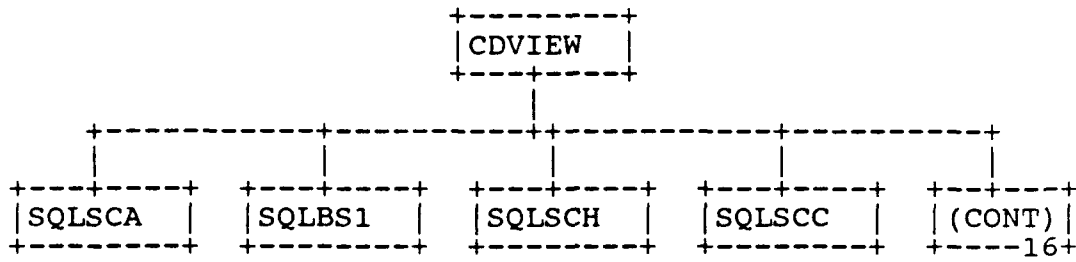


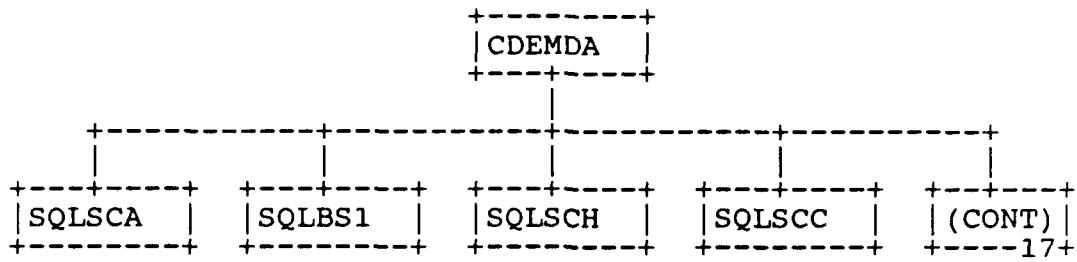


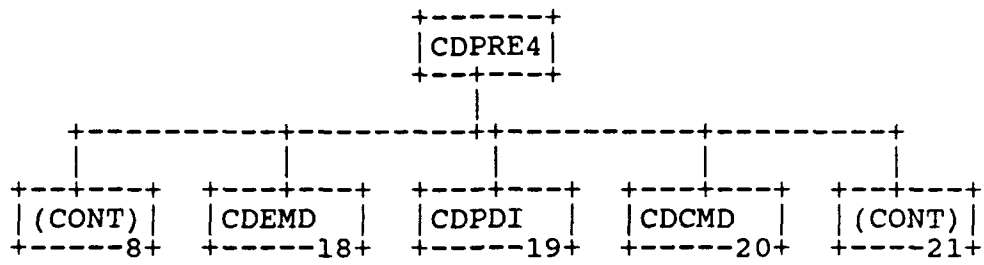


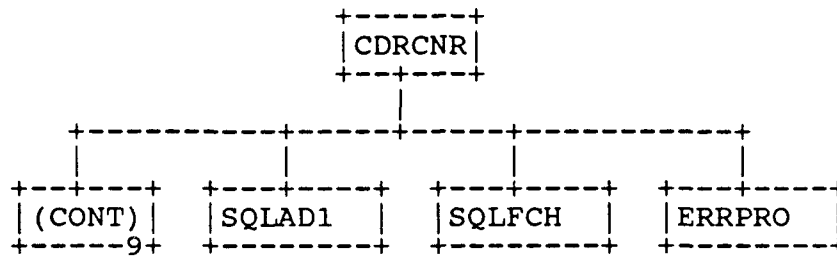


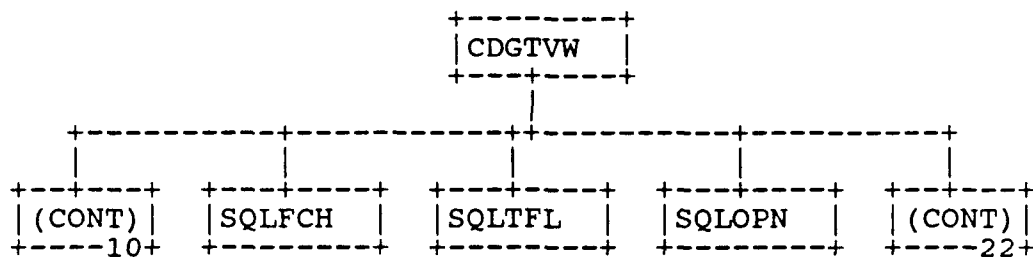


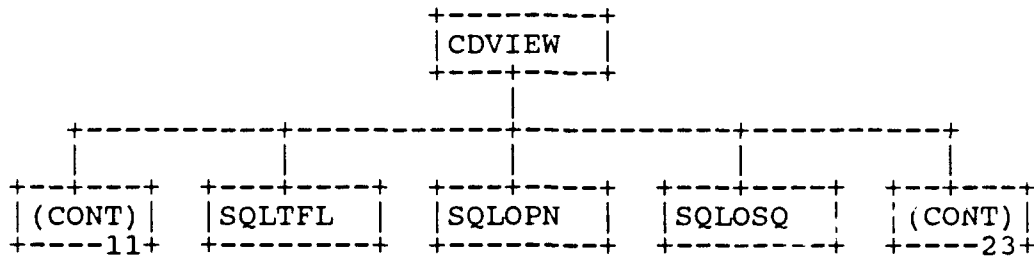


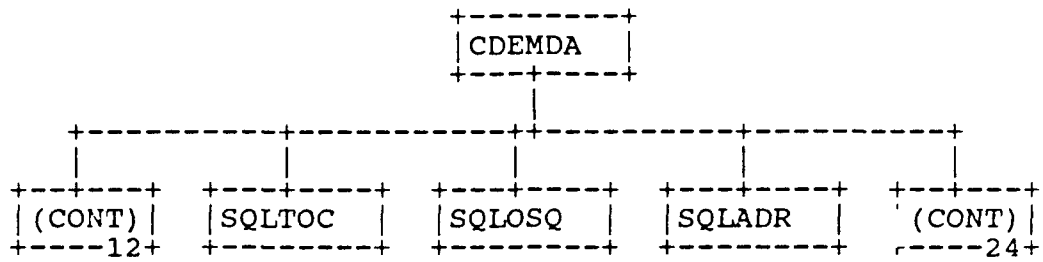


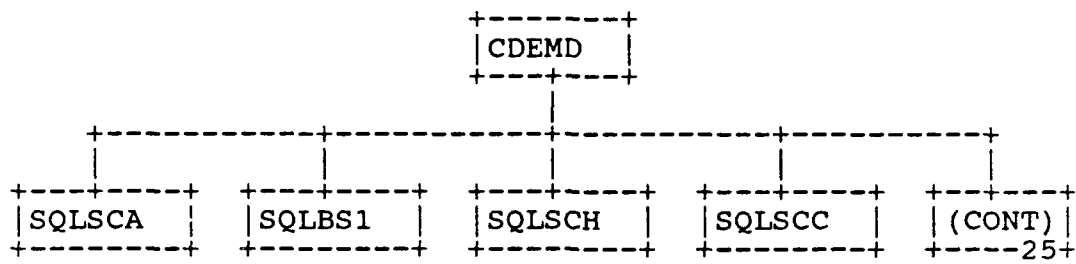


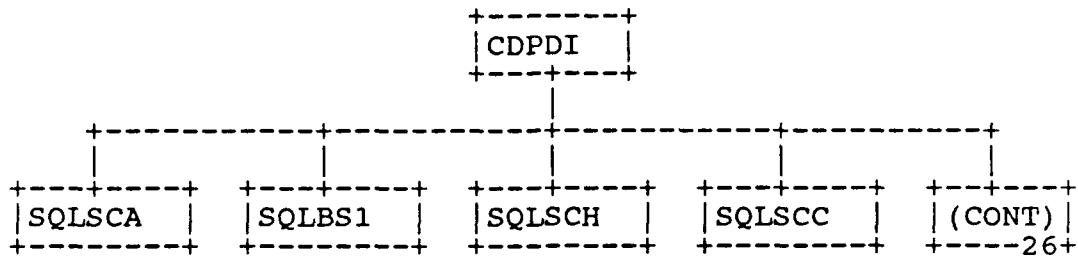


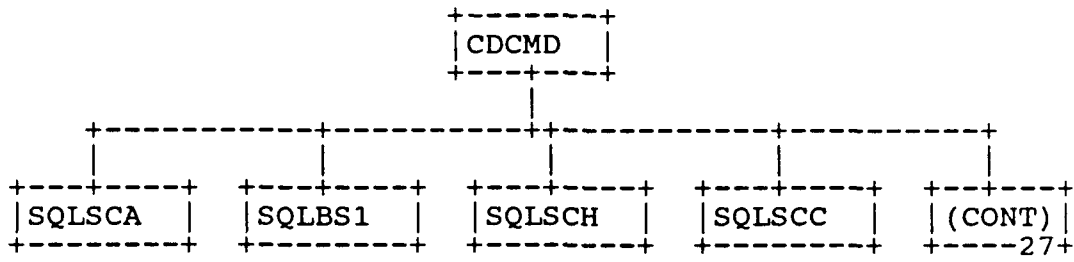


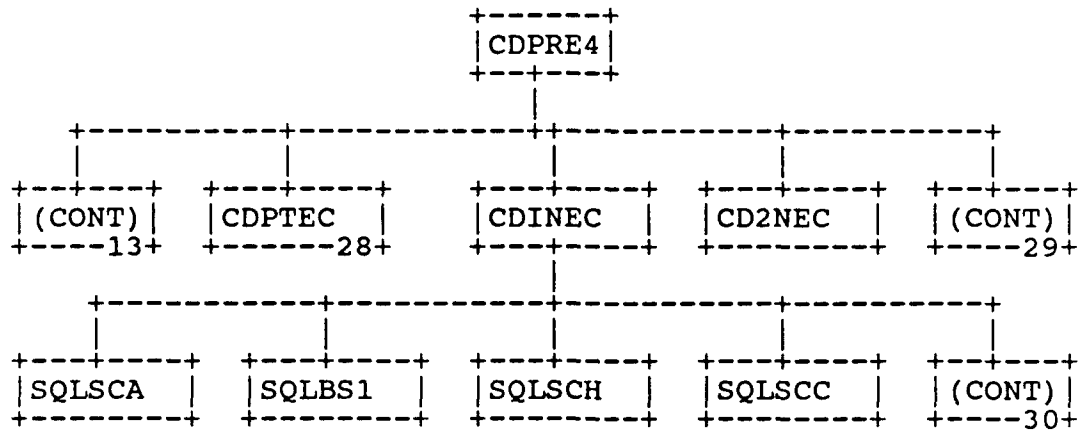


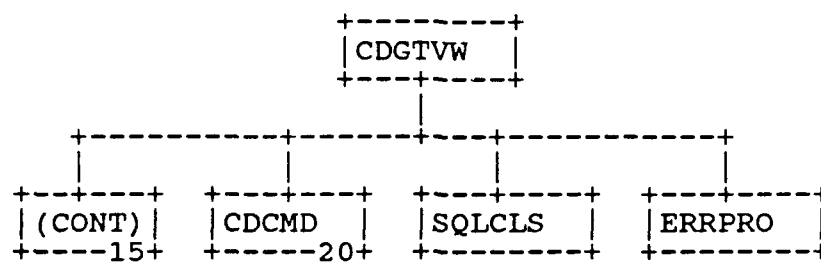


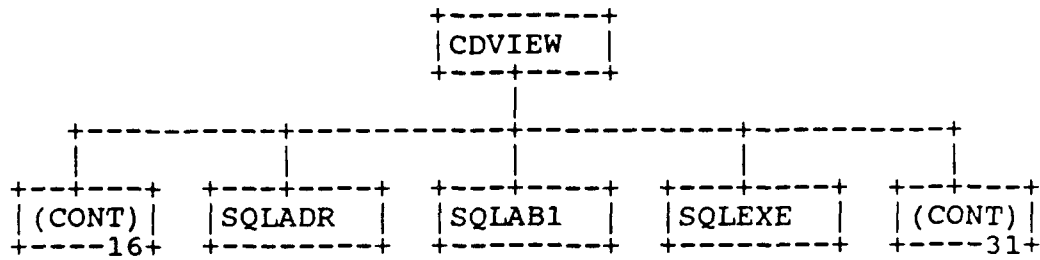


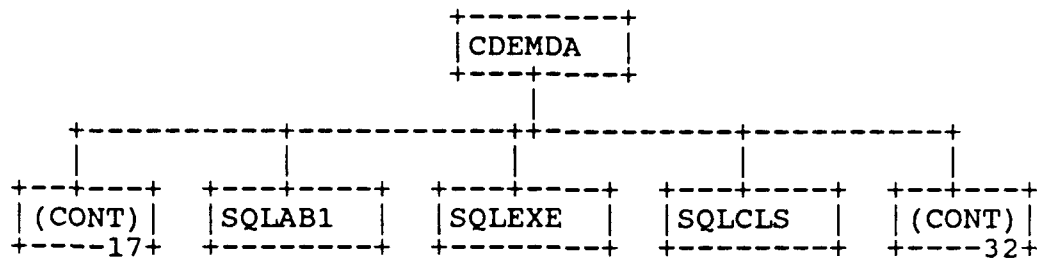


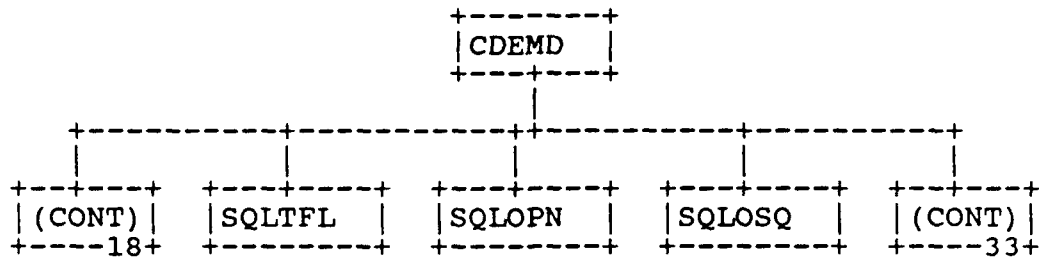


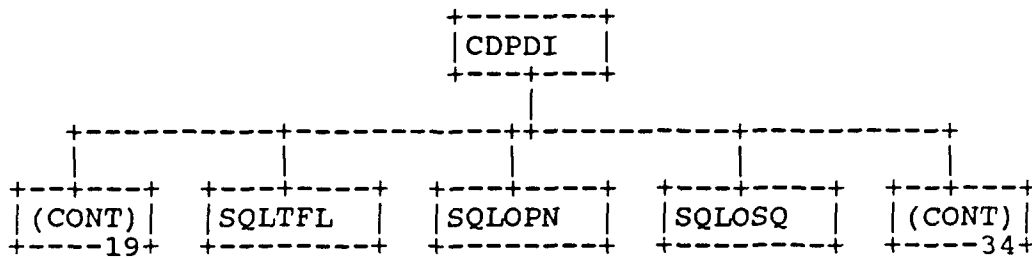


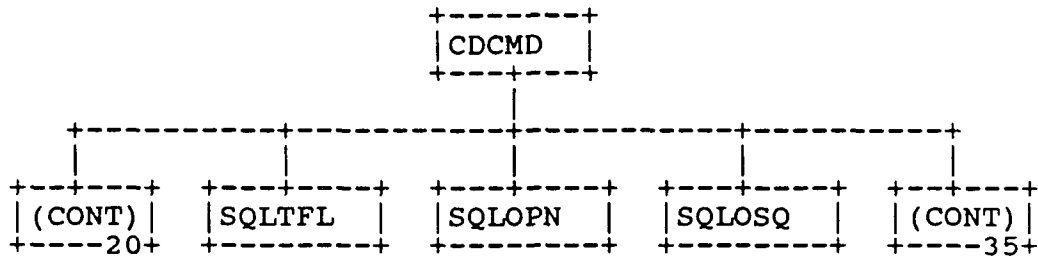


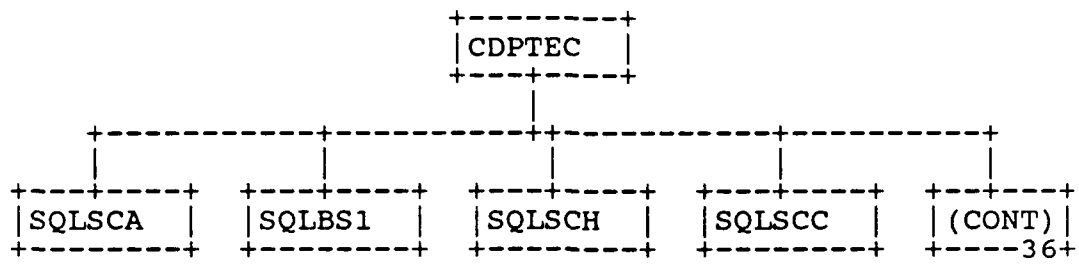


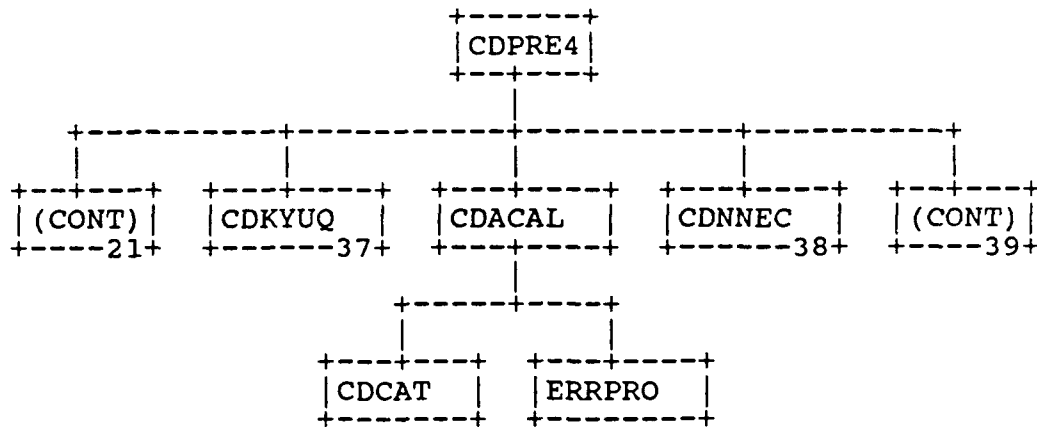


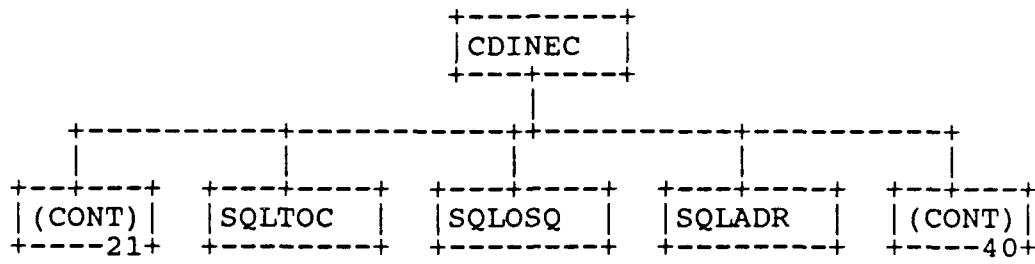


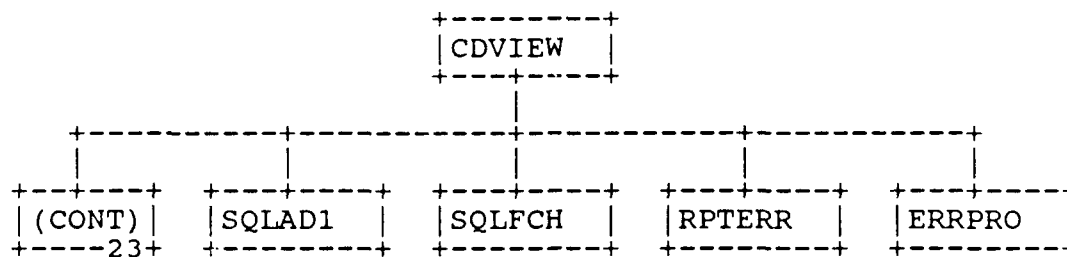


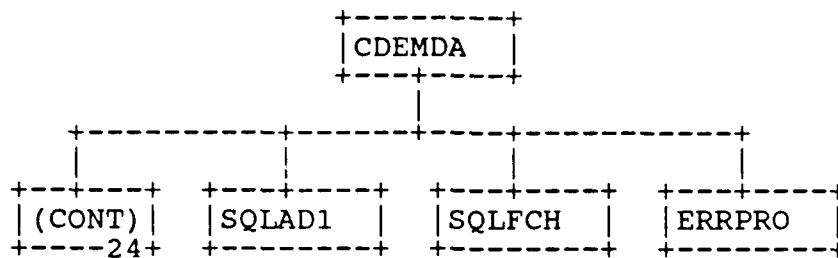


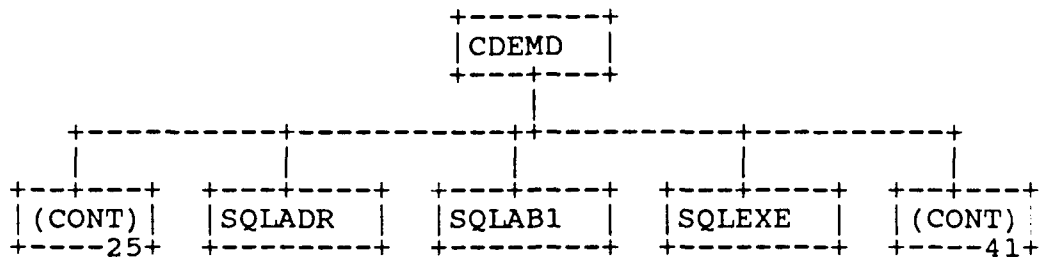


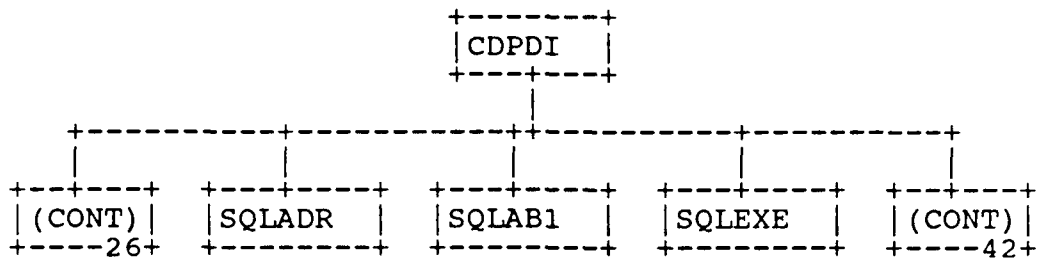


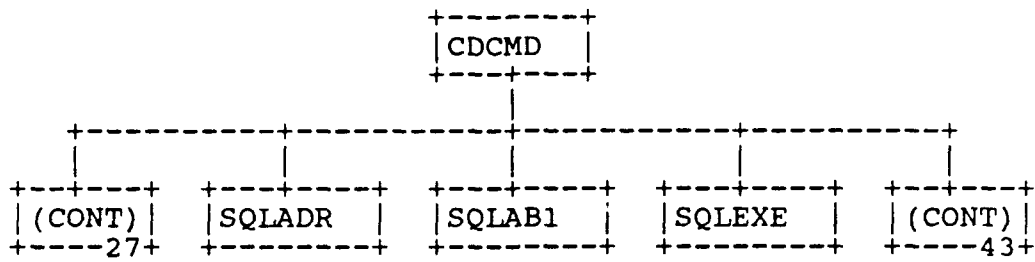


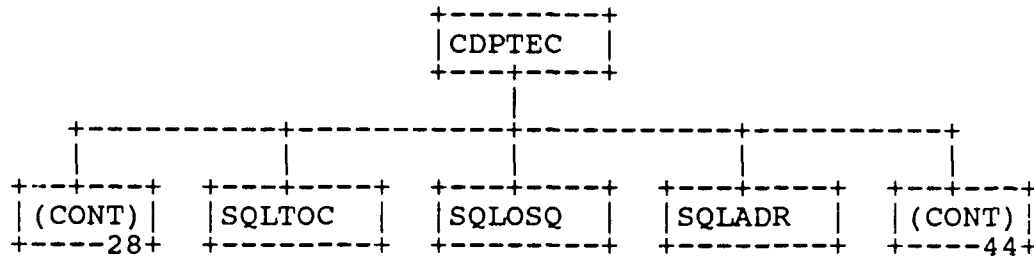


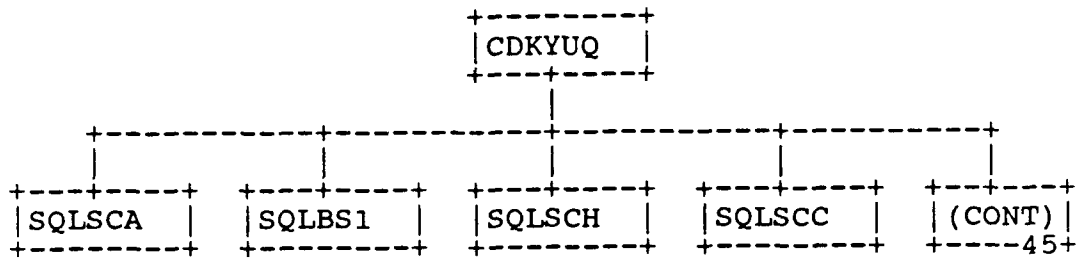


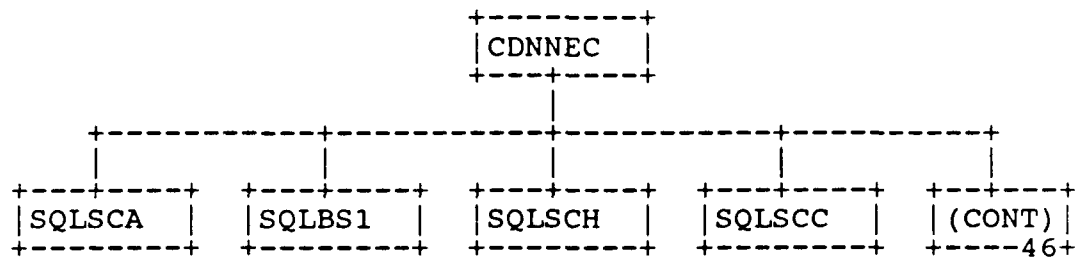


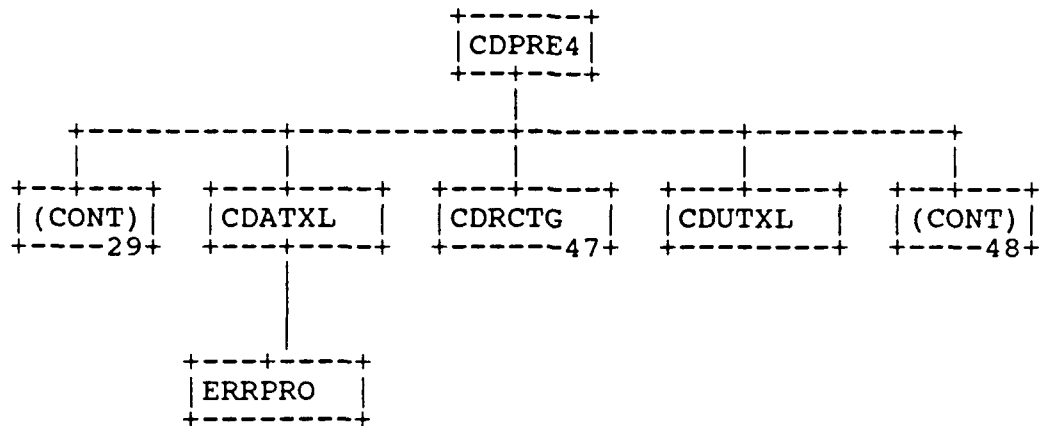


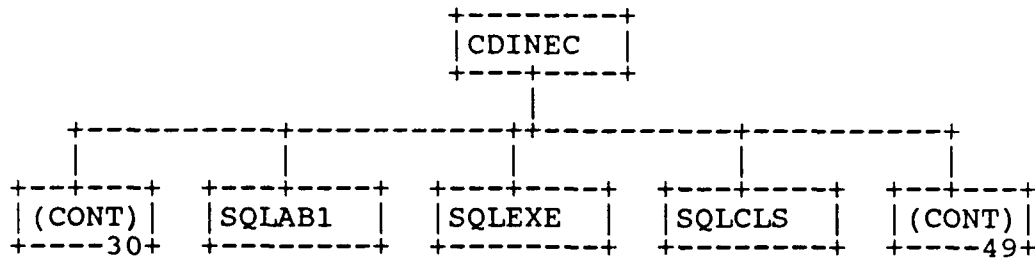


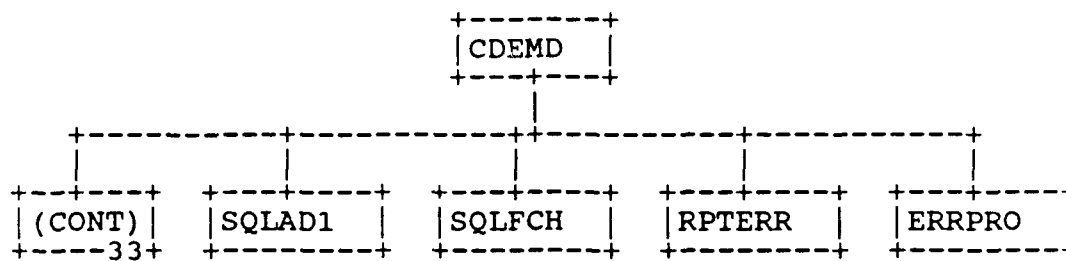


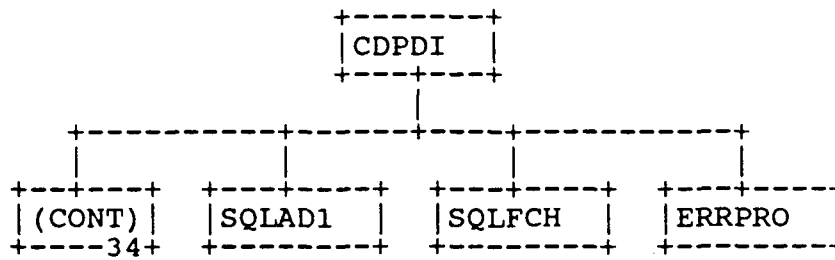


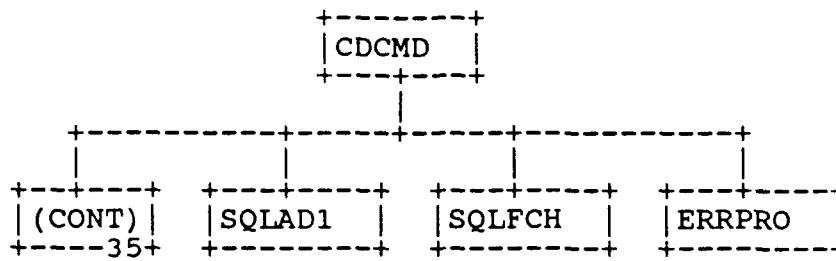


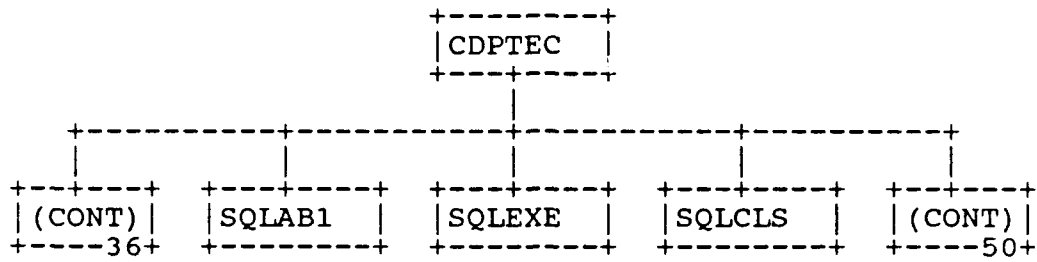


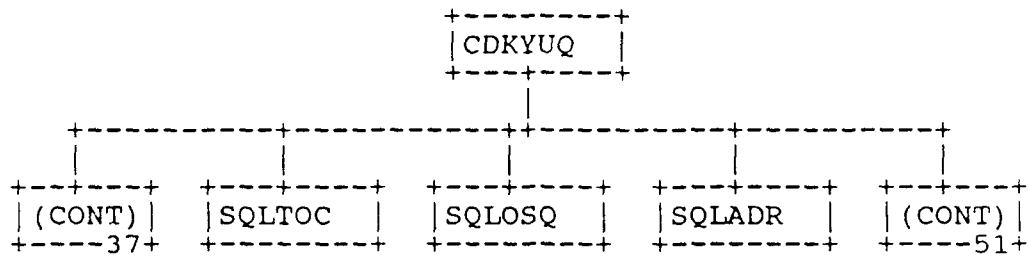


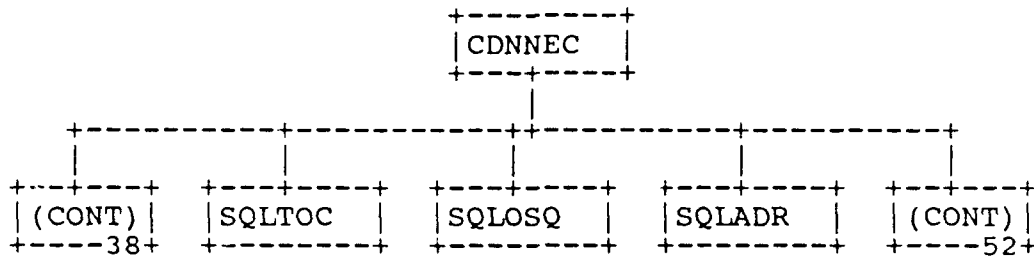


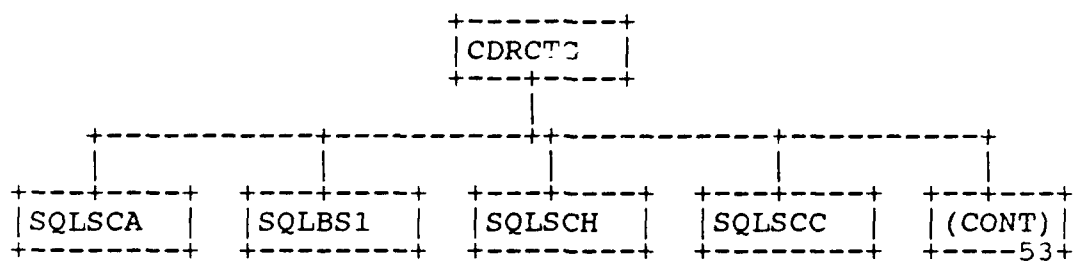


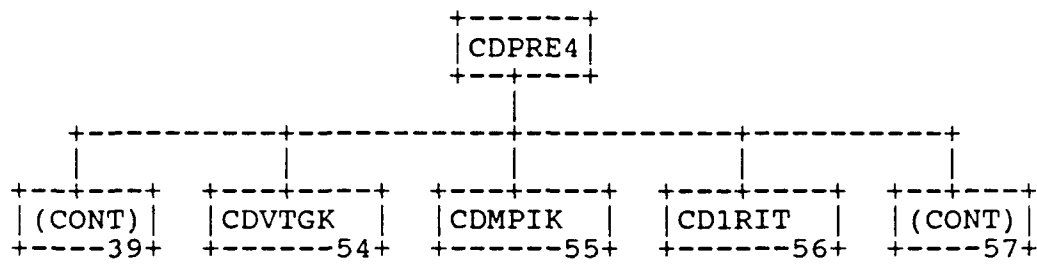


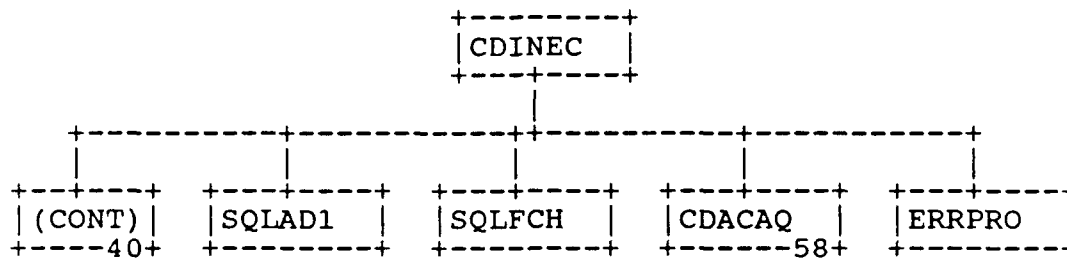


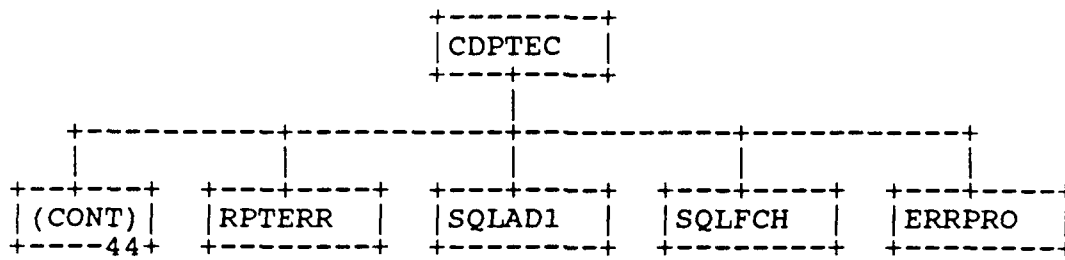


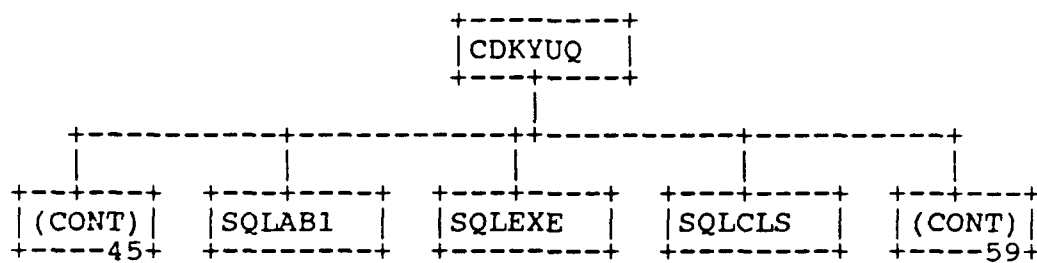


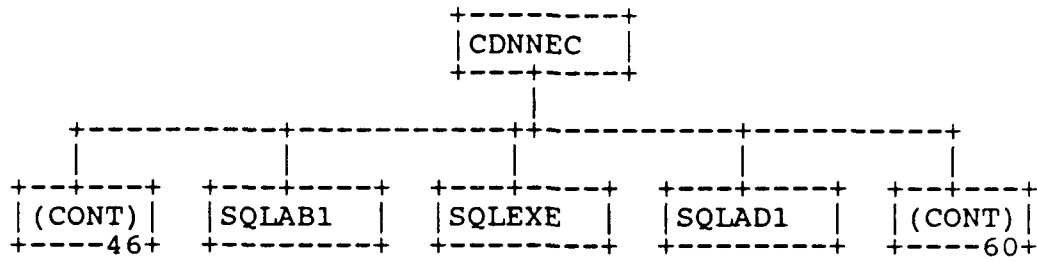


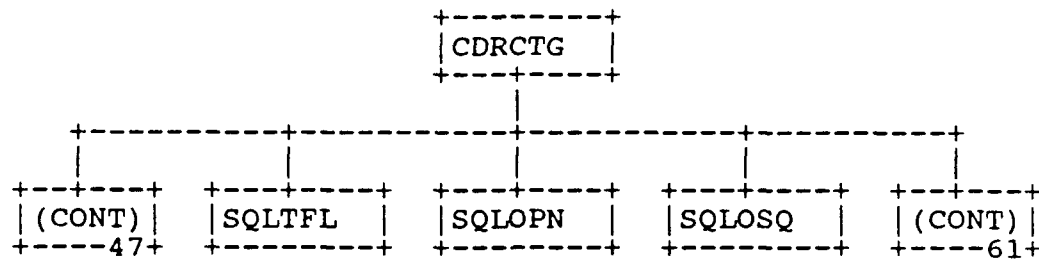


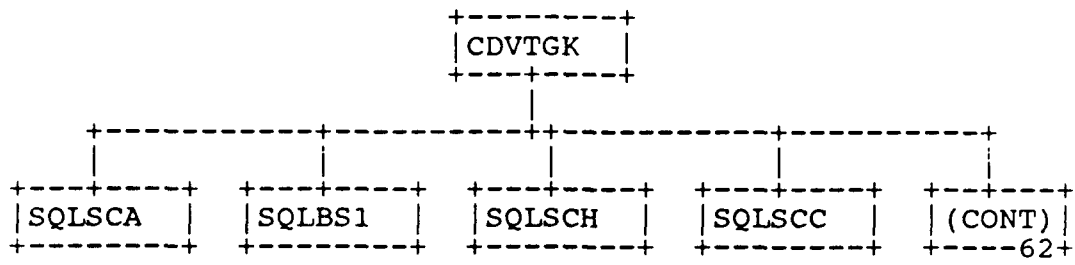


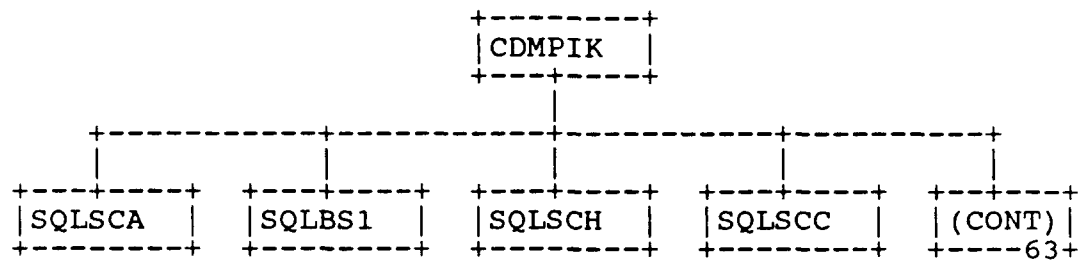


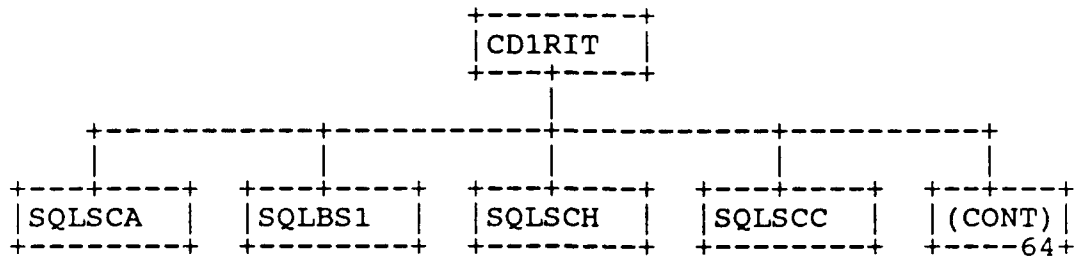


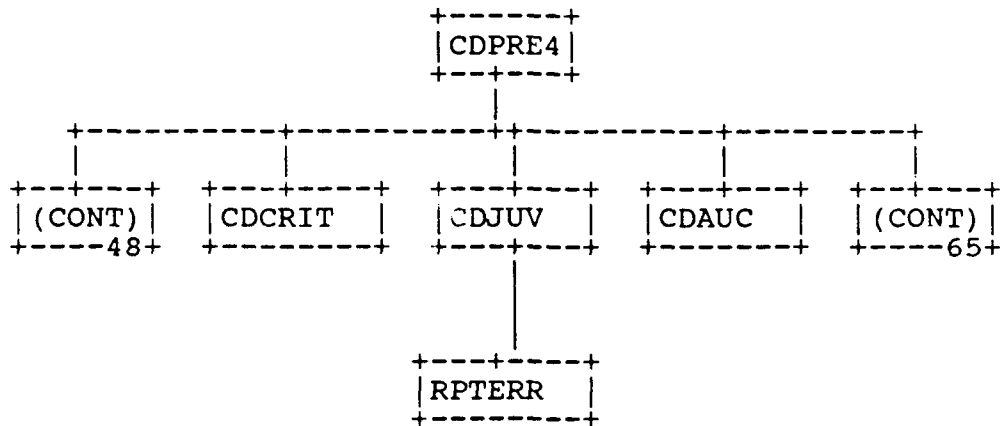


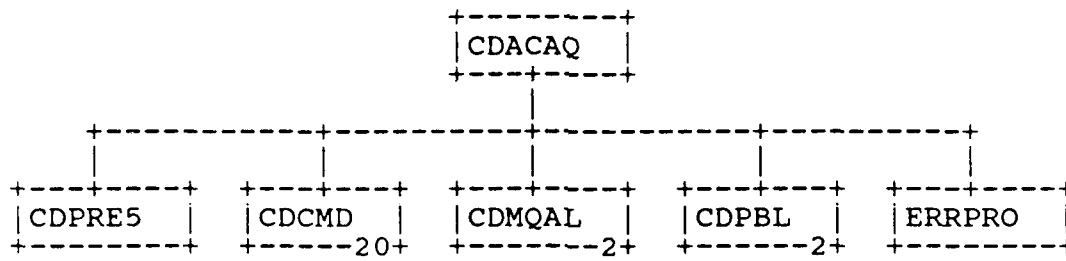


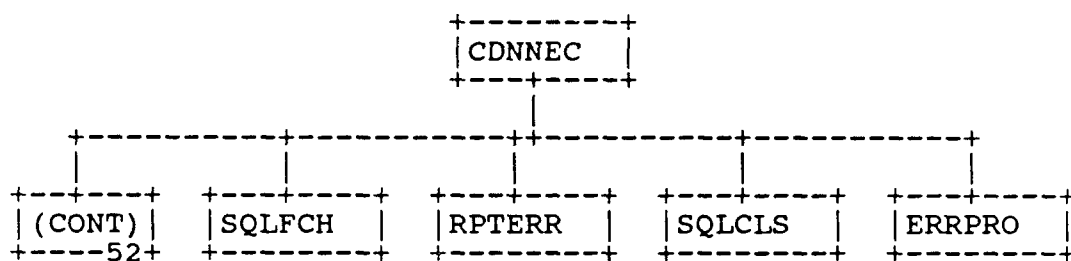


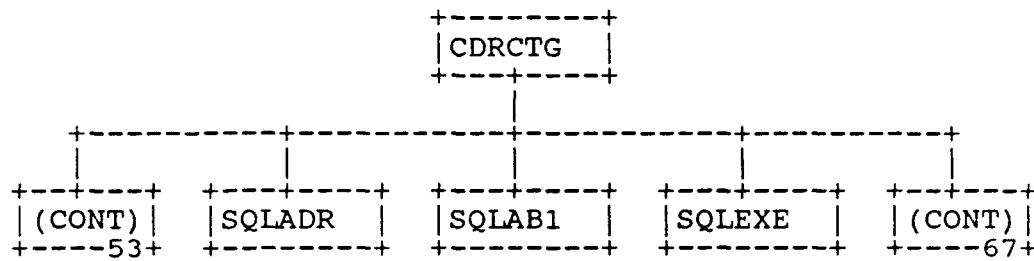


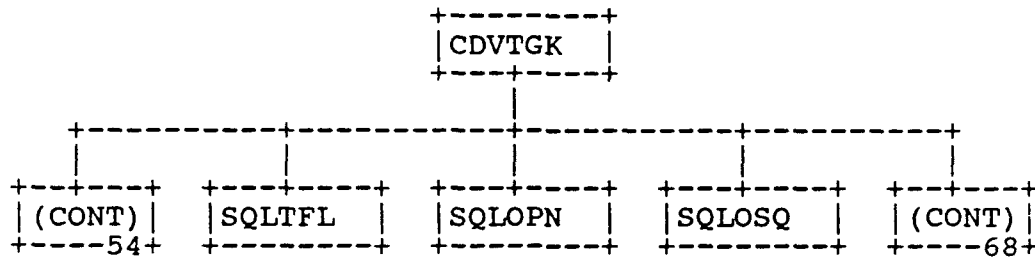


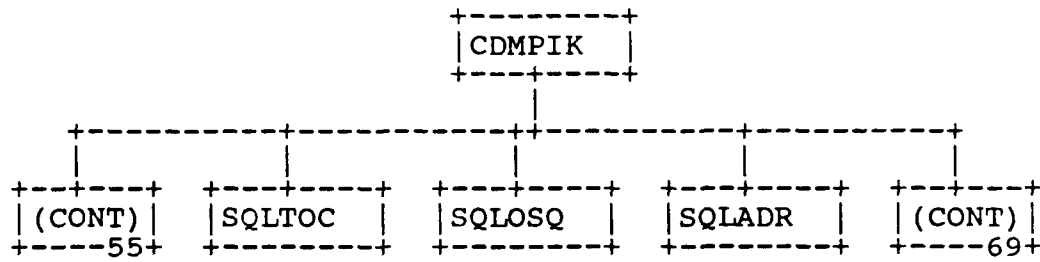


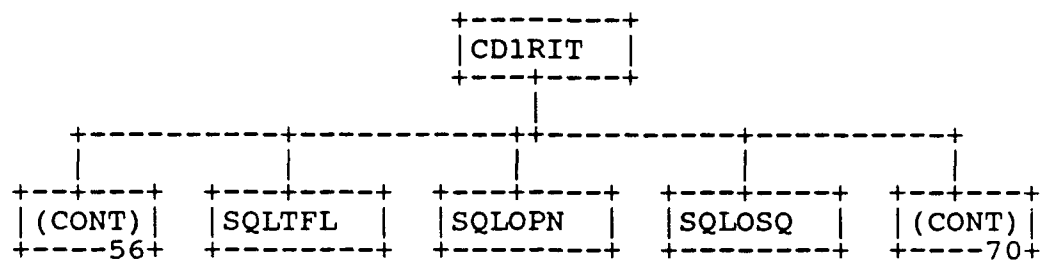


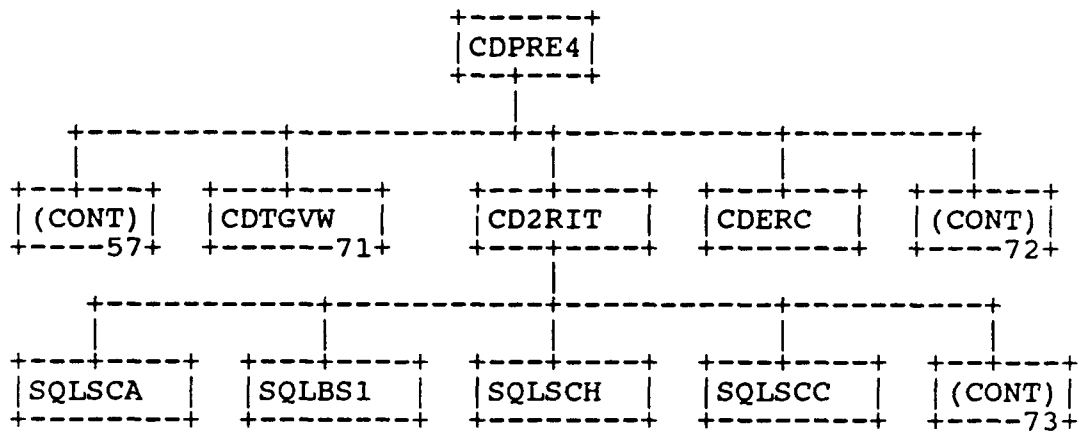


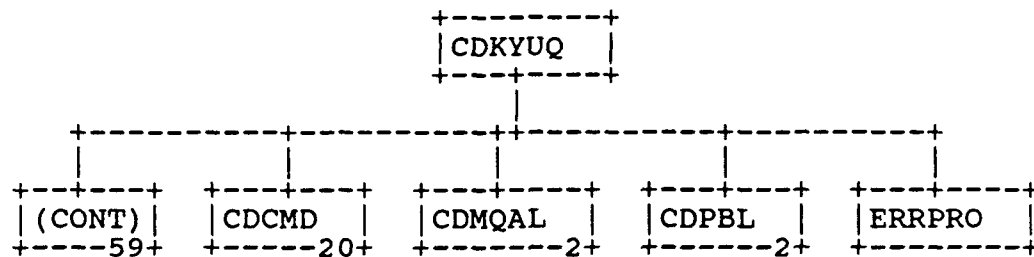


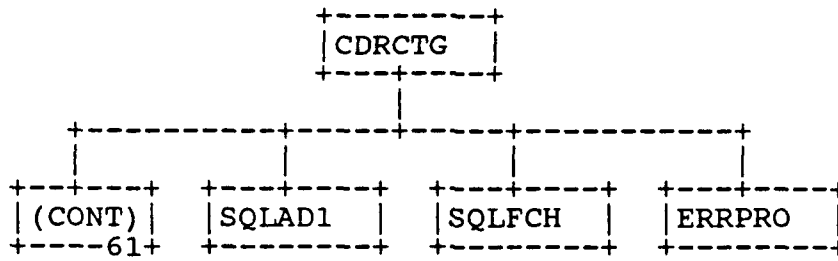


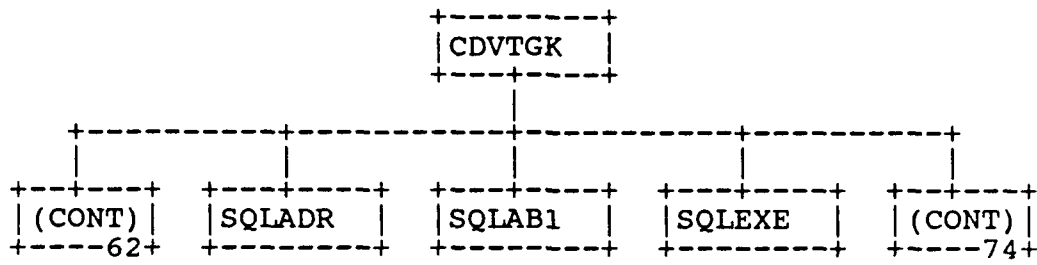


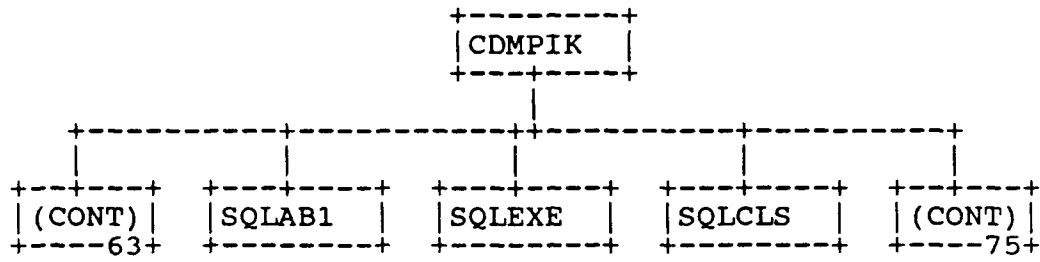


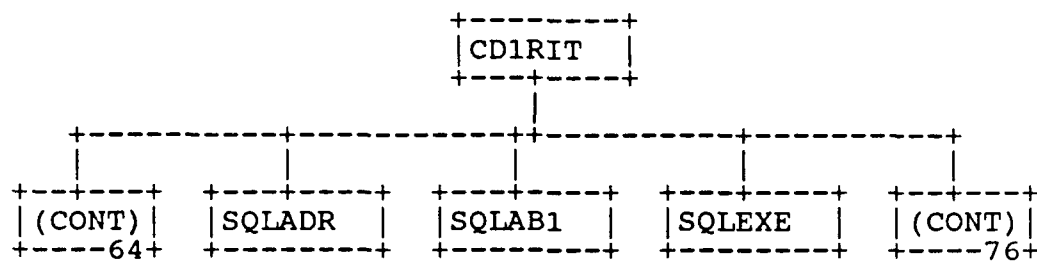


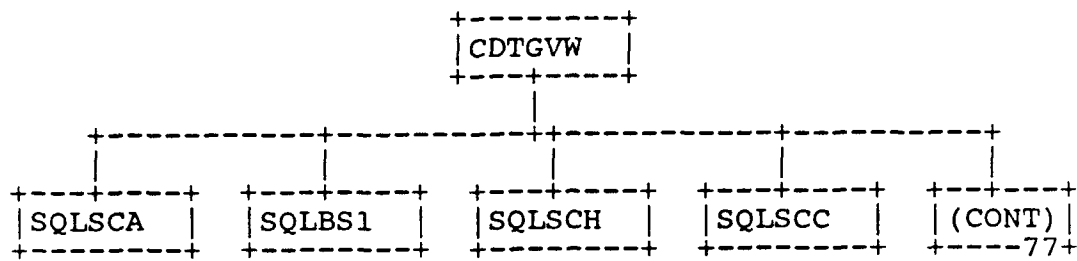


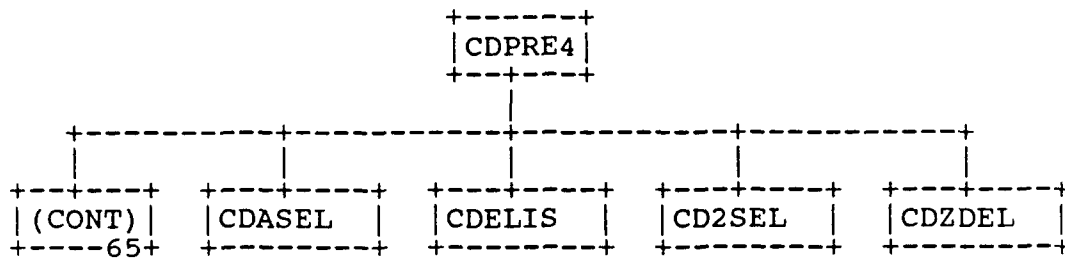


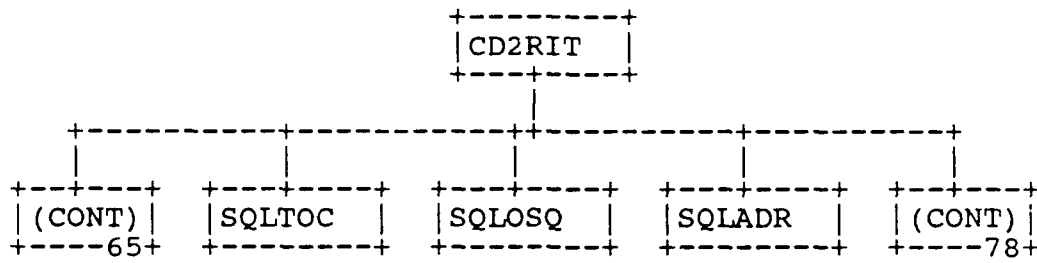


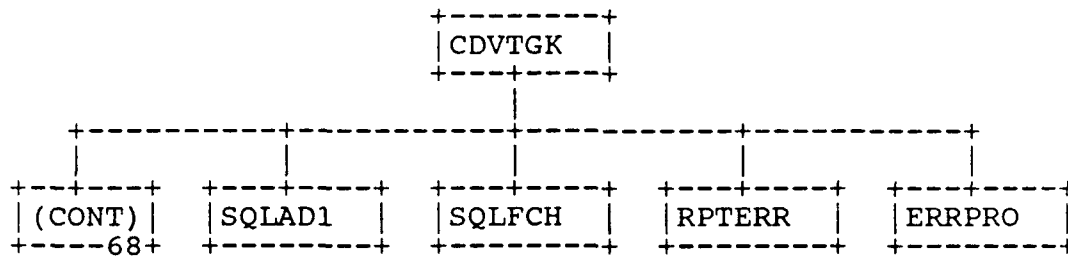


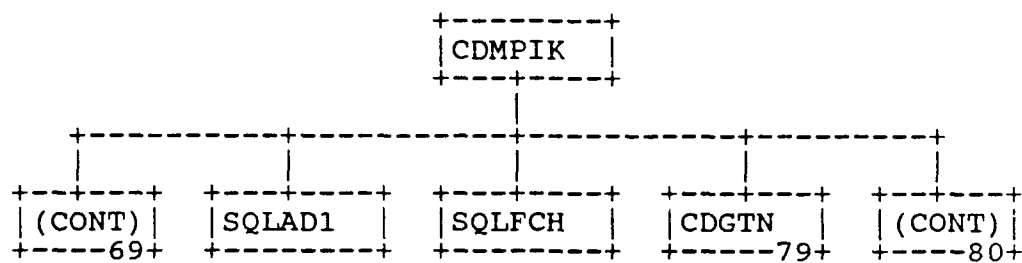


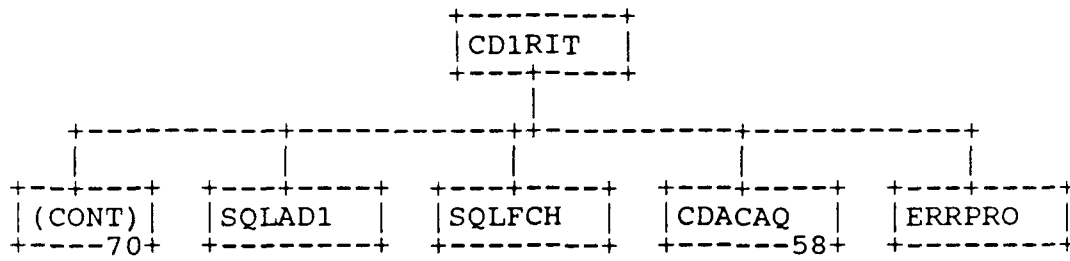


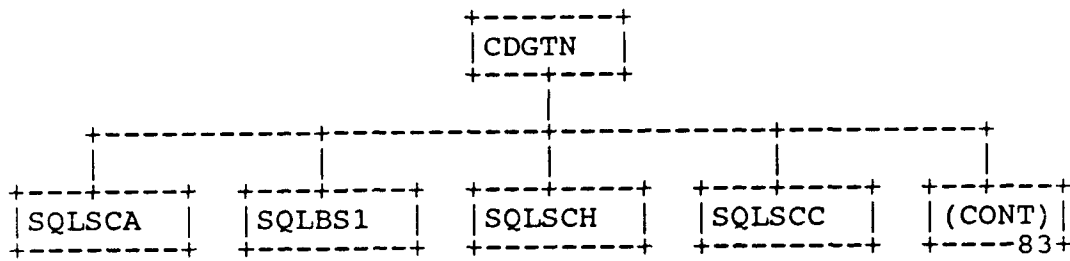


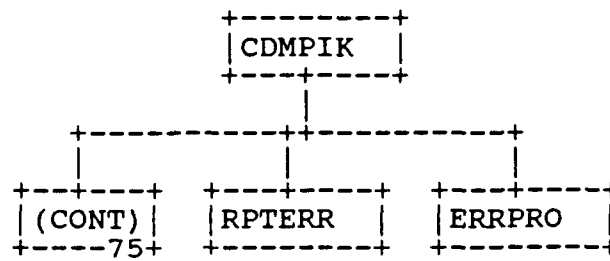


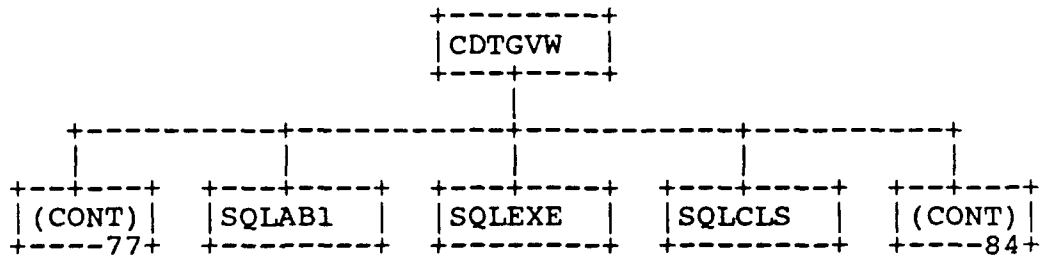


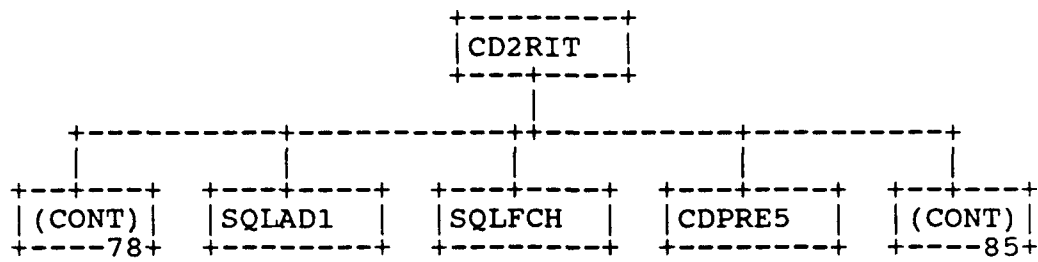


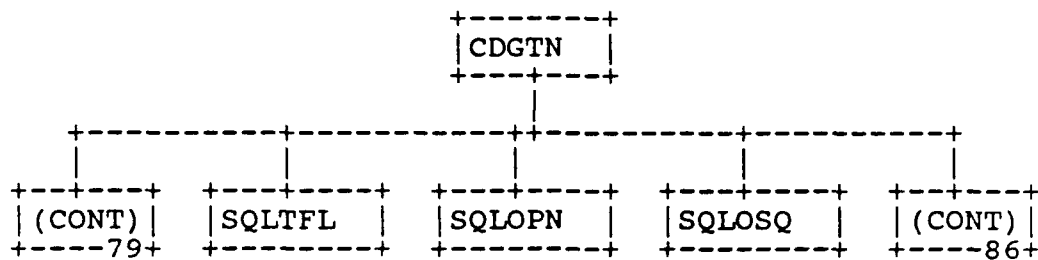


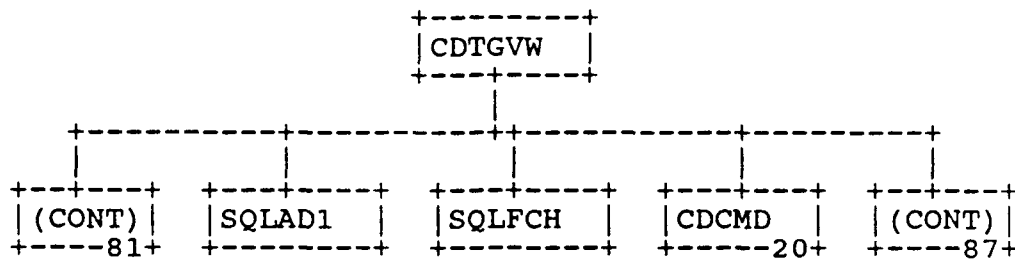


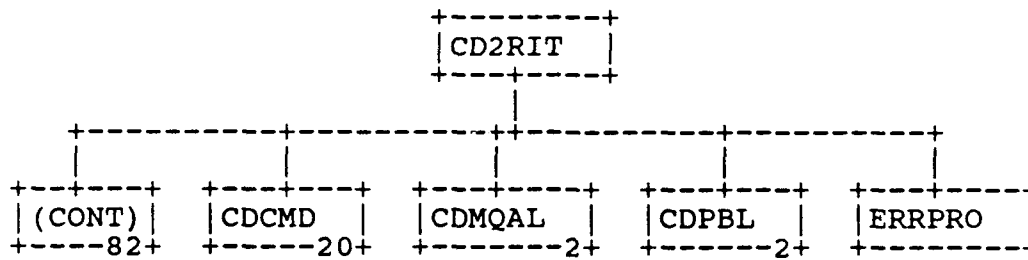


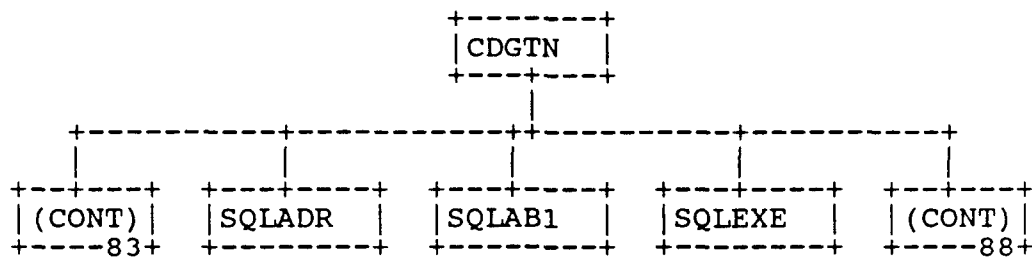


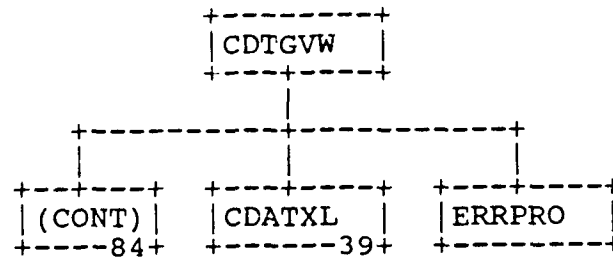


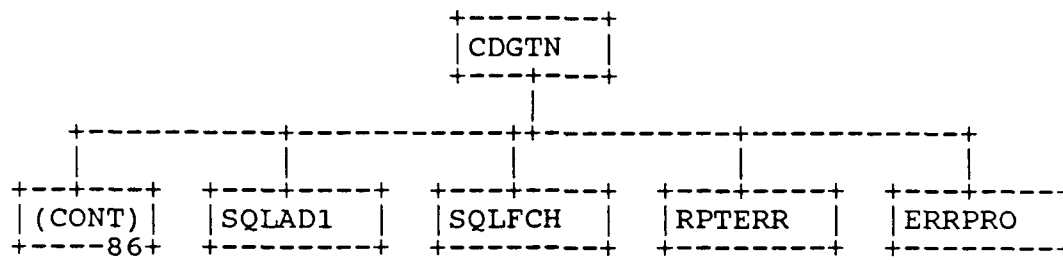












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CD2NEC		SQLOPN
CD2RIT	...65	SQLOSQ
CD2SEL		SQLSCA
CDABVW		SQLSCC
CDACAL	...29	SQLSCH
CDACAQ	...58	SQLTFL
CDASEL		SQLTOC
CDATXL	...39	
CDAUC		
CDCAT		
CDCMD	20	
CDCRIT		
CDELIS		
CDEMD	18	
CDEMDA	...12	
CDERC		
CDGTN	79	
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CDIDIU		
CDINEC	...21	
CDJUV	57	
CDKYUQ	...37	
CDMPIK	...55	
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CDNNEC	...38	
CDPBL	2	
CDPDI	19	
CDPRE4	2	
CDPRE5		
CDPTEC	...28	
CDRCNR	3	
CDRCTG	...47	
CDTGVW	...71	
CDUTXL		
CDVIEW	...11	
CDVNV	1	
CDVTGK	...54	
CDZDEL		
ERRPRO		
RPTERR		
SQLAB1		
SQLAD1		
SQLADR		
SQLBS1		
SQLCLS		
SQLEXE		

3.11 Program Listings Comments

This information is contained in the Module Descriptions in Section 3.10.

SECTION 4

QUALITY ASSURANCE PROVISIONS

4.1 Introduction and Definitions

"Testing" is a systematic process that may be preplanned and explicitly stated. Test techniques and procedures may be defined in advance, and a sequence of test steps may be specified. "Debugging" is the process of isolation and correction of the cause of an error.

"Antibugging" is defined as the philosophy of writing programs in such a way as to make bugs less likely to occur and when they do occur, to make them more noticeable to the programmer and the user. In other words, as much error checking as is practical and possible in each routine should be performed.

4.2 Computer Programming Test and Evaluation

The quality assurance provisions for test consists of the normal testing techniques that are accomplished during the construction process. They consist of design and code walk-throughs, unit testing, and integration testing. These tests are performed by the design team. Structured design, design walk-through and the incorporation of "antibugging" facilitate this testing by exposing and addressing problem areas before they become coded "bugs."