

CA-IDMS/Database Extractor[®]

User Guide

15.0



Computer Associates™

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Contents

How to use this Manual	ix
Chapter 1. General Information	1-1
1.1 What Is CA-IDMS/DBX?	1-4
1.2 CA-IDMS/DBX Components	1-5
1.2.1 Online Components	1-5
1.2.1.1 The Selection Criteria Specification Component	1-5
1.2.1.2 The Specification Utilities Component	1-6
1.2.1.3 The JCL Editor Component	1-6
1.2.1.4 The JCL Utilities Component	1-6
1.2.1.5 The JCL Submission Component	1-6
1.2.1.6 The User Profile Component	1-6
1.2.1.7 The Online Documentation Component	1-6
1.2.2 Batch Components	1-7
1.2.2.1 The Database Extract Component	1-7
1.2.2.2 The Database Load Component	1-7
1.2.2.3 The Specification Print Utility	1-7
1.2.2.4 The JCL Member Print Utility	1-7
1.2.3 Customization Macro	1-7
1.2.4 Writing a User Exit Module	1-8
1.2.5 Converting your CA-IDMS/DBX Release 3.5 Database to Release 15.0	1-8
Chapter 2. Concepts	2-1
2.1 Consider a Test Database	2-4
2.2 CA-IDMS/DBX Implementation	2-5
2.2.1 Phased Implementation	2-5
2.3 CA-IDMS/DBX Database Paths	2-6
2.3.1 Database Entry Point	2-6
2.3.2 Record Level Selection Criteria	2-6
2.3.3 Recursive Data Structures	2-9
2.4 Creating CA-IDMS/DBX Database Paths	2-12
2.4.1 Manual Selection of Records/Sets	2-12
2.4.2 Hierarchical Selection	2-13
2.4.3 Network Selection	2-13
2.4.4 Deselecting Previously Selected Records/Sets	2-14
2.4.5 Terminating Record Level Selection Criteria	2-14
Chapter 3. Online Session	3-1
3.1 Getting Started	3-4
3.2 Signing on to CA-IDMS/DBX	3-5
3.3 Online Documentation	3-6
3.3.1 Online Documentation Message Facility	3-6
3.4 CA-IDMS/DBX Screens	3-7
3.5 Transfer Facility	3-8
3.6 Typical Session Activities	3-9
3.6.1 Naming the Source and Target Subschemas	3-9
3.6.2 Creating a Selection Criteria Specification	3-9

3.6.3	Running the Batch Components	3-10
3.7	A Sample Selection Criteria Specification Session	3-11
3.7.1	Step 1. Sign On to CA-IDMS/DBX	3-12
3.7.2	Step 2. Specify the Source and Target Subschemas	3-13
3.7.2.1	Rules for Source and Target Subschemas	3-15
3.7.3	Step 3. Define the Database Path	3-15
3.7.4	Step 4. Limit the Number of Records Displayed	3-16
3.7.5	Step 5. Select the Entry Record	3-17
3.7.6	Step 6. Define Record Level Selection Criteria--DEPT Record	3-18
3.7.7	Step 7. Select Sets for the Extract Component	3-19
3.7.8	Step 8. Define Record Level Selection Criteria--TEACHER Record	3-20
3.7.9	Step 9. Select Additional Record/Sets	3-21
3.7.10	Step 10. Return to the Database Entry Point Selection Menu Screen	3-22
3.7.11	Step 11. Return to the Specify Database Extract Specification Screen	3-23
3.7.12	Step 12. Edit JCL	3-23
3.7.13	Step 13. Submit JCL for Execution	3-25
3.7.14	Step 14. Sign Off From CA-IDMS/DBX	3-25
3.7.14.1	How Specifications and JCL Members are Saved	3-26
3.8	Additional Screens	3-27
3.8.1	Specify Specification List Screen	3-27
3.8.2	Begin Edit Record Selection List Screen	3-28
3.8.3	Index Entry Point Selection List Screen	3-29
3.8.4	Area Deselection Screen	3-29
3.8.5	Entry Record/Index Deselection Screen	3-30
3.8.6	Path Set Deselection Screen	3-31
3.8.7	Field Level Selection Criteria Screen	3-32
3.8.8	Record/Element Review Screen	3-33
3.8.8.1	Example	3-33
3.8.8.2	Record/Element Display & Modification Commands	3-34
3.8.8.3	DISPLAY Command	3-35
3.8.8.4	Rule for the DISPLAY Command	3-35
3.8.8.5	EXIT Command	3-35
3.8.8.6	INITIALIZE Command	3-36
3.8.8.7	QUIT Command	3-36
3.8.8.8	SET AUTOHEX Command	3-36
3.8.8.9	SET HEX/NATIVE Command	3-36
3.8.8.10	SET LOWERCASE Command	3-37
3.8.9	Field Level Criteria Deselection Screen	3-37
3.8.10	Confirm Subschema Record Date Screen	3-38
3.8.11	Field Mismatch Screen	3-39
3.8.12	Utilities Menu Screen	3-39
3.8.12.1	Deleting, Printing, or Renaming Selection Criteria Specifications	3-40
3.8.12.2	Deleting, Printing, or Renaming JCL Members	3-40
3.8.12.3	Copying Selection Criteria Specifications or JCL Members	3-40
3.8.13	Specification Utilities Screen	3-40
3.8.13.1	Deleting a Selection Specification	3-40
3.8.13.2	Renaming a Selection Criteria Specification	3-41
3.8.13.3	Printing a Selection Criteria Specification	3-41
3.8.14	JCL Utilities Screen	3-41
3.8.14.1	Deleting a JCL Member	3-41
3.8.14.2	Renaming a JCL Member	3-42

3.8.14.3 Printing a JCL Member	3-42
3.8.15 Copy Utility Screen	3-42
3.8.15.1 Copying a Selection Criteria Specification	3-42
3.8.15.2 Copying a JCL Member	3-43
Chapter 4. Reports	4-1
4.1 CA-IDMS/DBX Audit Reports	4-4
4.1.1 Common Report Header Information	4-4
4.2 Extract Audit Report	4-5
4.2.1 Processing Messages and Statistics	4-5
4.2.2 Areas/Records/Sets Extracted	4-7
4.2.3 Extract Statistics	4-9
4.3 Load Audit Report	4-11
4.3.1 Processing Messages	4-11
Chapter 5. Operations	5-1
5.1 Operational Considerations	5-4
5.2 CA-IDMS/DBX Requirements	5-5
5.2.1 System Requirements	5-5
5.2.1.1 Operating Environment	5-5
5.2.1.2 Terminal Type	5-5
5.2.1.3 Security	5-5
5.2.2 Online Storage Requirements	5-5
5.2.2.1 Program Storage	5-5
5.2.2.2 Working Storage	5-6
5.2.2.3 Scratch Storage	5-6
5.2.2.4 Queue Storage	5-6
5.2.3 Batch Storage Requirements	5-6
5.3 Recovery Procedure	5-8
5.4 Executing CA-IDMS/DBX	5-9
5.4.1 Sample JCL	5-9
5.5 Syntax Notation	5-10
5.5.1 Extract File	5-10
5.5.2 Workfile	5-10
5.5.3 Communication File	5-11
5.5.4 Syntax File	5-11
5.5.5 Allocating Space for DASD Files	5-11
5.6 PROCESS Parameter	5-14
5.6.1 PROCESS Parameter Keywords	5-14
5.7 Performing the EXTRACT and LOAD Steps--USVEXEC	5-18
5.7.1 Running in Local Mode Under OS/390	5-19
5.7.2 Running in Local Mode Under VSE/ESA	5-24
5.7.3 Running in Local Mode Under VM/ESA	5-30
5.8 Printing JCL--USVPJCL	5-41
5.8.1 Running in Local Mode	5-41
5.9 Printing a Selection Criteria Specification--USVSPC	5-46
5.9.1 Running in Local Mode	5-46
5.10 Printing Online Documentation--USVPRINT	5-51
5.11 Customizing the CA-IDMS/DBX Environment--USVTPARM	5-53
5.12 Writing a User Exit Module--CUVUSRXA	5-55

5.12.1 CUVUSRXA Rules and Guidelines	5-55
Chapter 6. Messages	6-1
Appendix A. JCL Editing Commands	A-1
A.1 Editing Commands	A-4
A.1.1 Scroll Options	A-4
A.1.2 Primary Commands	A-4
A.1.3 Line Commands	A-4
A.2 Program Function Keys	A-5
A.3 Entering Commands	A-6
A.4 Scroll Options	A-8
A.5 Primary Commands	A-9
A.5.1 BOTTOM Command	A-9
A.5.2 BOUNDS Command	A-9
A.5.3 CANCEL Command	A-9
A.5.4 CAPS Command	A-10
A.5.5 CHANGE Command	A-10
A.5.5.1 Change Command Rules	A-11
A.5.6 CURSOR Command	A-11
A.5.7 DOWN Command	A-11
A.5.8 EDITOR-ID Command	A-12
A.5.9 END Command	A-12
A.5.10 ENTER Command	A-12
A.5.11 EXCLUDE Command	A-13
A.5.12 FIND Command	A-13
A.5.13 FIRST Command	A-14
A.5.14 KEYS Command	A-14
A.5.15 LAST Command	A-14
A.5.16 LEFT Command	A-14
A.5.17 LOCATE Command	A-15
A.5.17.1 Using the LOCATE Command	A-15
A.5.18 MEMORY Command	A-15
A.5.19 NULLS Command	A-16
A.5.20 PROFILE Command	A-16
A.5.21 RCHANGE Command	A-16
A.5.21.1 Using the RCHANGE and RFIND PF Keys to Selectively Change Strings	A-17
A.5.22 RESET Command	A-18
A.5.23 RESHOW Command	A-18
A.5.24 RFIND Command	A-19
A.5.25 RIGHT Command	A-19
A.5.26 SAVE Command	A-19
A.5.27 TABB Command	A-19
A.5.28 TABF Command	A-20
A.5.29 TABS Command	A-20
A.5.30 TIME Command	A-20
A.5.31 TOP Command	A-21
A.5.32 UP Command	A-21
A.6 Line Commands	A-22
A.6.1.1 Entering Line Commands	A-22

A.6.1.2	How to Use Line Commands	A-22
A.6.2	A (after) Command	A-22
A.6.3	B (before) Command	A-22
A.6.4	BNDS (bounds) Command	A-23
A.6.5	COLS (columns) Command	A-23
A.6.6	C (copy) Command	A-23
A.6.6.1	Rules for Using the Copy Line Command	A-24
A.6.7	D (delete) Command	A-24
A.6.7.1	Rules for Using the D (delete) Line Command	A-24
A.6.8	X (exclude) Command	A-25
A.6.9	I (insert) Command	A-25
A.6.10	M (move) Command	A-25
A.6.10.1	Rules for Using the Move Line Command	A-26
A.6.11	R (repeat) Command	A-26
A.6.11.1	Rules for Using the R (repeat) Line Command	A-27
A.6.12	TABS Command	A-27
A.7	Text Manipulation Line Commands	A-28
A.7.1	Text Split Command	A-28
A.7.2	Text Flow Command	A-28
A.7.3	Text Entry Command	A-29
A.7.4	Destructive Line Shift Command	A-29
A.7.5	Protective Line Shift Command	A-30
Appendix B.	Converting to CA-IDMS/DBX Release 15.0	B-1
B.1	Conversion Steps	B-4
B.1.1	Step 1. Create a Selection Criteria Specification	B-4
B.1.2	Step 2. Create JCL for the Database Extract Process	B-5
B.1.3	Step 3. Submit the Database Extract JCL	B-5
B.1.4	Step 4. Backup the CA-IDMS/DBX Release 3.5 Database	B-5
B.1.5	Step 5. Install CA-IDMS/DBX Release 15.0	B-5
B.1.6	Step 6. Convert the Extract and Communication Files	B-6
B.1.7	Step 7. Run the CA-IDMS/DBX Load Program	B-10
B.1.8	Step 8. Execute the Final Conversion Program	B-10
Glossary		X-1
Index		X-3

How to use this Manual

Purpose

This guide provides the information you need to significantly speed up the testing and maintenance phases of applications development by using CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX). In addition, the many features that CA-IDMS/DBX offers are documented.

Organization

Chapter	Description
Glossary	Provides definitions of terms used in this guide.
1	Introduces CA-IDMS/DBX and describes its components.
2	Discusses the procedure for extracting a test database. It presents several important concepts about CA-IDMS/DBX.
3	Presents an overview of a typical CA-IDMS/DBX online session. It describes how to sign on and sign off CA-IDMS/DBX and introduces the CA-IDMS/DBX screens.
4	Describes the Extract Audit Report and the Load Audit Report produced by CA-IDMS/DBX.
5	Details CA-IDMS/DBX operations, including system requirements, storage requirements, and recovery procedures. It includes sample JCL for all CA-IDMS/DBX Batch Components and utilities.
6	Lists the messages generated by CA-IDMS/DBX, including reasons for their occurrences and suggested remedial actions.
A	Provides detailed descriptions of the CA-IDMS/DBX JCL editing commands.
B	Describes the steps required to convert a CA-IDMS/DBX Release 3.5 database to a CA-IDMS/DBX Release 15.0 database. You must complete the steps outlined in this appendix before you can upgrade from CA-IDMS/DBX Release 3.5 to Release 15.0.
Index	Provides an alphabetical list of CA-IDMS/DBX terms and concepts with their locations in the user guide.

Related Publications

In addition to this guide, Computer Associates supplies the following related publications.

Name	Contents
CA-IDMS installation guides	An installation guide provides complete information about the installation and maintenance of your product.
Online Documentation	Comprehensive online documentation including HELP screens and an Online Message Facility is included.

Chapter 1. General Information

1.1	What Is CA-IDMS/DBX?	1-4
1.2	CA-IDMS/DBX Components	1-5
1.2.1	Online Components	1-5
1.2.1.1	The Selection Criteria Specification Component	1-5
1.2.1.2	The Specification Utilities Component	1-6
1.2.1.3	The JCL Editor Component	1-6
1.2.1.4	The JCL Utilities Component	1-6
1.2.1.5	The JCL Submission Component	1-6
1.2.1.6	The User Profile Component	1-6
1.2.1.7	The Online Documentation Component	1-6
1.2.2	Batch Components	1-7
1.2.2.1	The Database Extract Component	1-7
1.2.2.2	The Database Load Component	1-7
1.2.2.3	The Specification Print Utility	1-7
1.2.2.4	The JCL Member Print Utility	1-7
1.2.3	Customization Macro	1-7
1.2.4	Writing a User Exit Module	1-8
1.2.5	Converting your CA-IDMS/DBX Release 3.5 Database to Release 15.0	1-8

This chapter introduces CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX) and describes its components and features.

1.1 What Is CA-IDMS/DBX?

CA-IDMS/DBX is an applications development tool that significantly speeds up the testing and maintenance phases of applications development by reducing or eliminating the need to develop special test database load programs.

To use CA-IDMS/DBX, three basic steps are necessary:

1. Choose an appropriate CA-IDMS database as input (that is, the source database).
2. Use the Selection Criteria Specification Component of CA-IDMS/DBX to describe the records of the source database that you want extracted from the source database and loaded to the target database.
3. Tell CA-IDMS/DBX to extract the selected records from the source database and load them to the target database. The source database remains unchanged.

1.2 CA-IDMS/DBX Components

CA-IDMS/DBX consists of several components, some of which execute in an online environment, and others in a batch environment.

1.2.1 Online Components

The CA-IDMS/DBX online components are described below. They include:

- Selection Criteria Specification Component
- Specification Utilities Component
- JCL Editor Component
- JCL Utilities Component
- JCL Submission Component
- User Profile Component
- Online Documentation Component.

1.2.1.1 The Selection Criteria Specification Component

The Selection Criteria Specification Component manages your library of selection criteria specifications. Use this component to:

- Describe the existing source database that will be used as the basis for generating the target database
- Describe the paths to use when selecting the records from the source database
- Describe the selection criteria to be used when following these paths
- Save your specifications under a specification name of your choice.

The Selection Criteria Specification Component allows you to specify criteria for selection in these ways:

- Select particular areas/records/fields/sets
- Limit the selection of a record type to a specific FROM/TO page range
- Select a record by field value(s), including by CALC key and integrated index SORT key values
- Select a record by direct DBKEY
- Select a group of records within a specified page range, beginning with the first record occurrence within the range
- Select a group of records within a specified page range beginning with the *nth* occurrence within the range
- Skip a specified number of records before selecting the next record occurrence

- Specify the number of levels to be extracted in a recursive bill-of-materials structure
- Specify whether you want to extract all owners of extracted recursive records
- Limit the total number of records selected by record type
- Limit the number of records selected in each set occurrence.

1.2.1.2 The Specification Utilities Component

Use the Specification Utilities Component to copy, delete, print, and rename your Selection Criteria Specifications.

1.2.1.3 The JCL Editor Component

Use the JCL Editor Component to create and modify the JCL used to run the Batch Components of CA-IDMS/DBX. It contains sample JCL members that you can quickly modify online to suit the needs of your environment.

1.2.1.4 The JCL Utilities Component

Use the JCL Utilities Component to copy, delete, print, and rename JCL members.

1.2.1.5 The JCL Submission Component

Use the JCL Submission Component to submit JCL online to the internal reader for executing the batch extract and batch load components of CA-IDMS/DBX.

1.2.1.6 The User Profile Component

Use the User Profile Component to tailor PF keys to suit your needs. Use the KEYS command to access the User Profile Component and change your PF key settings. The PF key assignments that you make are saved, and are in effect for every session of CA-IDMS/DBX until you change them again.

1.2.1.7 The Online Documentation Component

The Online Documentation Component gives you information about the CA-IDMS/DBX screens, commands, the Transfer Facility, available PF keys, and CA-IDMS/DBX message text.

The Computer Associates Online Documentation Print Utility provided with CA-IDMS/DBX allows you to print the information included in the Online Documentation Component. The sample JCL library member GSIPRINT contains the JCL to execute the Online Documentation Print Utility.

The printed version of the online documentation is presented one screen per page and includes page reference indexes for screen options. Characters highlighted in the online documentation appear bolded in the printed version.

See Chapter 5, “Operations” for more information about the Online Documentation Print Utility.

1.2.2 Batch Components

The CA-IDMS/DBX Batch Components are described below. They include:

- Database Extract Component
- Database Load Component
- Specification Print Utility
- JCL Member Print Utility.

1.2.2.1 The Database Extract Component

The Database Extract Component accesses the specified source database to extract record and set information. The number and type of set and record occurrences selected is governed by both the description you provided during the Selection Criteria Specification process and the structure and information contained within the source database.

Selected information is written to an Extract File and an audit report is produced. The audit report displays the parameters that you submitted and a summary of the information extracted from the source database.

1.2.2.2 The Database Load Component

The Database Load Component uses the extract file created during the database extract process and loads the target database with information extracted from the source database.

1.2.2.3 The Specification Print Utility

The Specification Print Utility allows you to print a Selection Criteria Specification that you created and saved using the online Selection Criteria Specification Component.

1.2.2.4 The JCL Member Print Utility

The JCL Member Print Utility allows you to print a JCL member that you created and saved using the JCL Editor Component.

1.2.3 Customization Macro

The CA-IDMS/DBX customization macro gives you the ability to change the following operational parameters:

- The task code used to invoke CA-IDMS/DBX.

- The dictionary into which the online documentation modules were loaded at installation.
- The number of entries to allocate for the CA-IDMS/DBX set stack.
- From whom a user can copy other JCL members and Selection Criteria Specifications.
- The default for the RETAIN PHYSICAL SEQUENCE OF MEMBER RECORDS IN THE SET? field on the Record Level Selection Criteria screen.
- The default for the EXTRACT ALL OWNERS FOR EXTRACTED RECURSIVE RECORDS? field on the Record Level Selection Criteria screen.
- The default for the BEGIN VIEWING/EDITING IN THE MIDDLE OF A PATH DEFINITION? field on the Specify Database Extract Specification screen.
- Whether to have message NLYZ008 be a warning (W) message or an error (E) message. NLYZ008 is displayed at extract time when a mandatory member is being extracted without its owner. An error message prevents the Selection Criteria Specification from being used.

See Chapter 5, “Operations” for information on customizing CA-IDMS/DBX.

1.2.4 Writing a User Exit Module

CA-IDMS/DBX Release 15.0 gives you the ability to write an assembler user exit module to be called prior to a record's being written to the Extract File. This exit is called by the Database Extract Component when:

- CA-IDMS/DBX is walking the source database looking for records to be extracted, and
- A record meets its Record Level Selection Criteria.

You can change the record data, add or delete fields to/from the record data, or prevent the record from being written to the file. We supply the descriptions of the parameters that will be passed to your exit module in both Assembler and COBOL formats.

1.2.5 Converting your CA-IDMS/DBX Release 3.5 Database to Release 15.0

If you want to use the Selection Criteria Specifications you created with CA-IDMS/DBX Release 3.5 with CA-IDMS/DBX Release 15.0, you must convert your CA-IDMS/DBX Release 3.5 database to Release 15.0 using the instructions found in Appendix B, “Converting to CA-IDMS/DBX Release 15.0.”

Chapter 2. Concepts

- 2.1 Consider a Test Database 2-4
- 2.2 CA-IDMS/DBX Implementation 2-5
 - 2.2.1 Phased Implementation 2-5
- 2.3 CA-IDMS/DBX Database Paths 2-6
 - 2.3.1 Database Entry Point 2-6
 - 2.3.2 Record Level Selection Criteria 2-6
 - 2.3.3 Recursive Data Structures 2-9
- 2.4 Creating CA-IDMS/DBX Database Paths 2-12
 - 2.4.1 Manual Selection of Records/Sets 2-12
 - 2.4.2 Hierarchical Selection 2-13
 - 2.4.3 Network Selection 2-13
 - 2.4.4 Deselecting Previously Selected Records/Sets 2-14
 - 2.4.5 Terminating Record Level Selection Criteria 2-14

This chapter briefly discusses the procedure for extracting a test database. Also presented are several important concepts about CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX). Understanding these concepts should help you to more easily extract a test database.

2.1 Consider a Test Database

Using a test database allows you to overcome the problems encountered by creating a mirror copy of your existing production database to use for testing purposes.

A very large database, by virtue of its size alone, prohibits creating a mirror copy for use as a test database. Logical segregation, to simplify testing and to help isolate problems discovered during the testing phase, is not easily achieved with mirror copies of large databases.

2.2 CA-IDMS/DBX Implementation

CA-IDMS/DBX allows you to create a test database that contains a meaningful sampling of data. Use this extracted data to test the known data interactions encountered by a unit of work in day-to-day processing.

To extract a test database, you must segregate data and all the programs that impact or are impacted by that same data. To do this:

1. Prepare an information model from business methods so that you can identify and group data according to business procedures. If test database implementation is considered in the design phase, this information model could evolve as a result of data flow diagrams.
2. Segregate all the dialogs that access (either update or retrieve) a given set of record types:
 - a. Select a major dialog and identify all the record types that it uses.
 - b. Find all the dialogs that use the same record types used by the dialog in the previous step.
3. Create a subschema with the records and sets identified through the segregation process detailed above.

If your existing database is already grouped into functional areas, an existing subschema can be used with CA-IDMS/DBX. If no existing subschema is appropriate, create a new one.

4. Use the identified set of dialogs to begin testing.

This implementation method creates multiple test databases. Using this method actually simplifies the testing process and helps to isolate problems encountered.

2.2.1 Phased Implementation

CA-IDMS/DBX can be used when you do not have a pre-existing database. Phased implementation allows data input programs to be implemented first. While this implementation does not create a test database, it does provide data for the subsequent implementation phases that require test data.

2.3 CA-IDMS/DBX Database Paths

A database path describes the records/sets that CA-IDMS/DBX looks at in your source database. For each record that CA-IDMS/DBX retrieves in a path, Record Level Selection Criteria that you define are applied. If the record meets the selection criteria, it is written to an Extract File. The records on the Extract File are loaded onto the target database.

2.3.1 Database Entry Point

A database entry point defines the beginning of a database path. A database path describes the records/sets that CA-IDMS/DBX walks in your source database. You can have one or more entry points or database paths depending on your particular database structure.

An entry point can be either a **record**, or a **system-owned integrated index** that is used to retrieve a record:

- **If an Entry Record is used**, the Database Extract Component needs to sweep the area in which the record resides to retrieve the record
- **If an Entry Index is used**, the index is used to retrieve the record without having to perform an area sweep.

However, if you specify CALC or IIX SORT keys by means of Field Level Selection Criteria for an Entry Record or an Entry Index, CA-IDMS/DBX retrieves the Entry Record or indexed record by the specified CALC or SORT key value. This specification eliminates the need for CA-IDMS/DBX to sweep an area looking for occurrences of the Entry Record and significantly speeds up extract time. See Chapter 3, “Online Session” for more information about the Field Level Selection Criteria screen.

2.3.2 Record Level Selection Criteria

Record Level Selection Criteria define what record occurrences in the source database are going to be extracted. The Criteria is maintained by set type and must be specified for each owner and member record of all sets selected in a path definition. If a record type is retrieved by two different sets, two sets of record level selection criteria must be specified.

For example, in Exhibit 2.2, IX-SUBJ-LNAME is selected as an entry index, the PREREQSFOR set is selected walking from owner to member, and the PREREQSARE set is selected walking member to owner. The SUBJECT record is retrieved twice in this path definition: once as member of the Entry Index and once as owner of the PREREQSARE set. Therefore, Record Level Selection Criteria must be defined for the SUBJECT record both as a member of the Entry Index and as owner of the PREREQSARE set. Thus, the Record Level Selection Criteria for the SUBJECT record as it is retrieved as a member of the entry index can be different than the

Record Level Selection Criteria for the SUBJECT as it is retrieved as owner of the PREREQSARE set.

Records can be selected from the source database in a variety of ways. Refer to the example of 2.3.2, "Record Level Selection Criteria" on page 2-6.

- **Direct DBKEY**--Extract the record occurrence with the DBKEY specified by the page/line fields. If you do not want to use Field Level Selection Criteria, use Direct DBKEY to select an OOK Entry Record or to select a record containing specific values in a particular field.
- **Limit Page Range**--Limits the extraction of record occurrences to the page range specified by the from/to page numbers.
- **Limit Records of This Type**--Limit the number of record occurrences extracted from the source database by:
 - Total number of record occurrences that you want CA-IDMS/DBX to extract from the source database. This value is the maximum number of record occurrences that CA-IDMS/DBX extracts for the record type.
 - Maximum number of record occurrences that CA-IDMS/DBX extracts for each set occurrence in which the record participates as a member.
- **Skip Between Records**--Bypasses the number of record occurrences specified by the skip count record type. For example, to extract every fifth record occurrence on the source database, specify a Skip Count of "4".
- **Specify First Within Range**--Tells CA-IDMS/DBX to extract the first occurrence of a record type accessed within a record's specified range. For a CALC record that is a member of a set being walked, the first occurrence retrieved may NOT be the first physical occurrence in the range.
- Field values tell CA-IDMS/DBX to compare field data in record occurrences to entered Field Level Selection Criteria. You may indicate that a record is to be extracted if the data in the record occurrence is:
 - Equal
 - Not Equal
 - Less Than
 - Less Than or Equal
 - Greater Than
 - Greater Than or Equalto the data you specify, or:
 - Within
 - Not Withina range of values you specify.

```

CA-IDMS/DBX Rnn.nn    — Record Level Selection Criteria
      hh:mm mm/dd/yy
COMMAND ==>>>
      USVMRLS
Entry Record: CRITERIA
Path Record:  CRITERIA      From Page:    370000
To Page:    372999
Accessed By: AREA SWEEP  of area    USV-DATA-AREA
Enter S to Select, D or blank to Deselect selection criteria,
press ENTER.
Note: The specification is currently not complete.
      Direct DBKEY      Page ==>>> 0000000000 Line
==>> 0000
      Limit Page Range    From Page ==>> 0000370000 To Page
==>> 0000372999
      S Limit Records of This Type      Total Record Count
==>> 0000000050
                                          Per Set Occurrence
==>> 0000000000
      Skip Between Records      Skip Count
==>> 0000000000
      First Within Range
      Nth Within Range          Which Occurrence
==>> 0000000000
      Field Level Selection Criteria    Display Criteria?
==>> Y (Y/N)
      Logical Key Selection Criteria    Display Criteria?
==>> Y (Y/N)
      Retain Physical Sequence of Member Records in the Set?
==>> Y (Y/N)
      Extract All Owners of Extracted Recursive Records?
==>> Y (Y/N)
      Number of Levels to Extract in the Recursive Structure
==>> 00000000

```

Exhibit 2.1: Sample Record Level Selection Criteria Screen

- In a situation where a record is retrieved by two different sets, you must tell CA-IDMS/DBX how many levels of the recursive structure are to be extracted.

Using the same example shown in Exhibit 2.1, where the IX-SUBJ-LNAME is selected as an Entry Index, the PREREQSFOR set is selected walking from owner to member, and the PREREQSARE set is selected walking member to owner, the SUBJECT record as owner of the PREREQSARE set would be retrieved a second time. You need to tell CA-IDMS/DBX how many occurrences of the SUBJECT record are to be retrieved, as owner of the PREREQSARE set, after each occurrence of the SUBJECT is retrieved by the Entry Index.

A more detailed discussion of extracting from recursive structures is presented below.

- When a set is selected as being walked from **member to owner** and the set is a non-sorted set, CA-IDMS/DBX must perform an OBTAIN NEXT IN SET until end of set in order to keep the logical integrity of the set intact. For extremely large sets, this walking may impose a tremendous amount of overhead. An option is provided to have CA-IDMS/DBX perform an OBTAIN OWNER in the set if you do not require CA-IDMS/DBX to maintain logical set integrity for the member records.

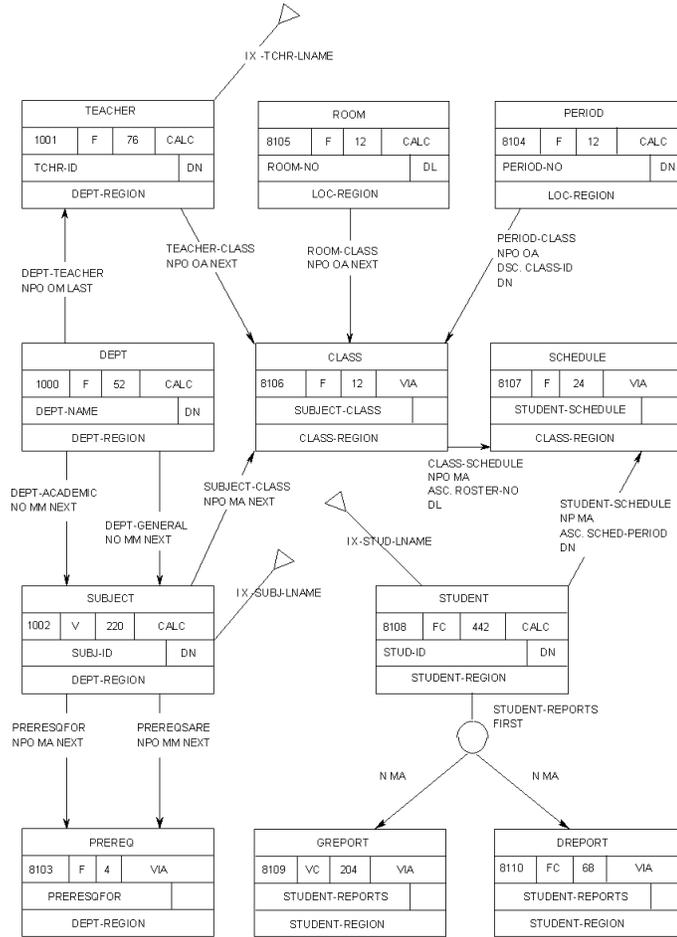


Exhibit 2.2: Example Data Structure Diagram

2.3.3 Recursive Data Structures

A structure is considered to be recursive if a record type is retrieved by more than one set type in the same path. A Bill-of-Materials (BOM) structure is an example of a recursive structure.

CA-IDMS/DBX lets you know that a recursive structure is in the path once you reach the Record Level Selection Criteria screen when a record type is retrieved a second or more time in the same path.

The following fields appear on the Record Level Selection Criteria screen only when a record type is retrieved a second or more time in the same path:

- EXTRACT ALL OWNERS OF EXTRACTED RECURSIVE RECORDS?====>** is displayed if the current record is recursive and the set is walked member to owner. You must tell CA-IDMS/DBX whether to extract all of the record's owners.

This action imposes a great deal of overhead. Enter an **N** in this field if you are certain that the owner records of all extracted recursive records will be extracted because they are retrieved via some OTHER SET in your path definition. Otherwise, your target database will NOT be complete.

- **NUMBER OF LEVELS TO EXTRACT IN THE RECURSIVE STRUCTURE====>**. In most recursive structures, this value should be set to zero (**0**), except for true BOM structures. Your situation may dictate otherwise. You must be aware, however, of the additional overhead needed to process recursive structures.

In the simplified data structure diagram shown below, the structure in Example 1 contains a BOM structure. In both examples, Record A is an Entry Record and SETS AB and BC1 are selected walking from owner to member. After defining Record Level Selection Criteria for record C as a member of the BC1 set, SET BC2 is selected walking from member to owner in Example 1. Set CA is selected walking owner to member in Example 2.

At this point, CA-IDMS/DBX determines that Record B in Example 1 and Record A in Example 2 participate in recursive structures and are regarded as **recursive** records. These records/sets define the beginning of the recursive structure. You must tell CA-IDMS/DBX how many times the recursive structure is to be walked once the beginning of the recursive structure is found.

In these examples, once Record B is retrieved through set BC2 and Record A is retrieved through set CA, you must tell CA-IDMS/DBX how many more times sets selected in the path after Record B in Example 1 and Record A in Example 2 are to be walked. Specifying zero (**0**) in the NUMBER OF LEVELS TO EXTRACT IN THE RECURSIVE STRUCTURE field tells CA-IDMS/DBX to not retrieve any more records/sets in the path at that point.

For each recursive record that is extracted, CA-IDMS/DBX also extracts **all owners of selected sets** in which the recursive record is currently a member. In these examples, after Record B is retrieved and extracted through set BC2, CA-IDMS/DBX extracts the owning Record A **even though set AB is being walked from owner to member**.

You may specify a value for NUMBER OF LEVELS TO EXTRACT IN THE RECURSIVE STRUCTURE that is greater than the actual number of levels present in your database. CA-IDMS/DBX uses this value as the **maximum** number of levels that it traverses.

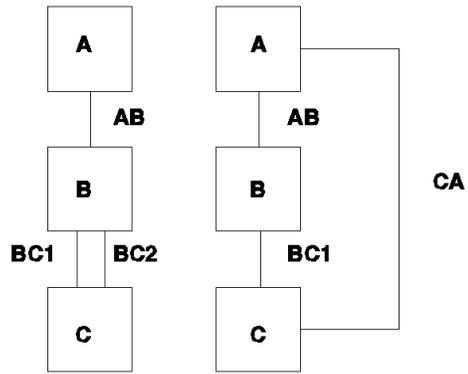


Exhibit 2.3: Example s of Recursive Structures

2.4 Creating CA-IDMS/DBX Database Paths

There are several ways of creating a database path in CA-IDMS/DBX:

- Manually selecting records/sets
- Having CA-IDMS/DBX perform a hierarchy selection
- Having CA-IDMS/DBX perform a network selection
- Deselecting previously selected records/sets.

2.4.1 Manual Selection of Records/Sets

Manually selecting sets in a path is an iterative process that consists of selecting sets to be included in the path, then defining Record Level Selection Criteria for owner and member records of the selected sets.

To begin the process, you first select an Entry Record or Entry Index to define the beginning of a database path. CA-IDMS/DBX then displays the Record Level Selection Criteria screen for the Entry Record or Entry Index record. You define the Record Level Selection Criteria for the record. CA-IDMS/DBX then displays the Path-Record Set Selection list screen that shows the sets that may be walked from the entry record. Sets are displayed only if they are not already selected in a path for the current specification.

If you select any sets from the Path-Record Level Selection Criteria screen, and the selected set is walked from:

- **Owner to Member** — The Record Level Selection Criteria screen is displayed for the **member** record. If the set is a multi-member set, a Record Level Selection Criteria screen is displayed for **each** member.
- **Member to Owner** — The Record Level Selection Criteria screen is displayed for the **owner** record.

Record Level Selection Criteria must be specified for each owner/member of all selected sets.

The process of selecting sets to be included in a path and defining Record Level Selection Criteria for all owner and member records of selected sets continues until:

- No sets are selected from the Path-Record Set Selection List screen, or all sets accessible from path records are already included in a path; and
- Record Level Selection Criteria have been defined for all owner and member records of selected sets.

2.4.2 Hierarchical Selection

With a hierarchical selection, CA-IDMS/DBX **automatically** selects all records and sets accessible walking **down** the structure, that is, **from owner to member**. When you make a hierarchical selection of a record or index, CA-IDMS/DBX marks it as an Entry Record or Entry Index. All members of sets owned by the Entry Record or Entry Indexed record, which do not already participate in a path and which are not indexed by an Entry Index, are selected in the path. All selected records that are themselves owners of sets are subject to the same selection process as the Entry Record.

There is an exception to the hierarchical selection process regarding a Bill-Of-Material (BOM) structure. The AUTOMATIC member of the BOM set is selected walking from the BOM record to the junction record. The MANUAL member of the BOM set is selected walking from the junction record to the BOM record.

The Record Level Selection Criteria from all records selected in this manner indicate to extract **all** record occurrences. You may modify the selection criteria of any or all of these records to limit the number of records extracted.

2.4.3 Network Selection

With a network selection, CA-IDMS/DBX automatically selects all records and sets accessible in the **entire** structure. When you make a network selection of a record in index, CA-IDMS/DBX marks it as an Entry Record or Entry Index. All owners of sets of which the Entry Record or Entry Indexed record is a member and, which do not already participate in a path and which are not indexed by an Entry Index, are selected in the path. All selected records that are themselves owners or members of sets are treated as if it were an Entry Record.

There is an exception to the network selection process regarding a Bill-Of-Material (BOM) structure. The AUTOMATIC member of the BOM set is selected walking from the BOM record to the junction record. The MANUAL member of the BOM set is selected walking from the junction record to the BOM record.

The Record Level Selection Criteria for all records selected in this manner indicate to extract **all** record occurrences. You may modify the selection criteria of any or all of these records to limit the number of records extracted.

You should verify that sets are walked in the manner in which you want them walked, that is, from owner to member or member to owner. CA-IDMS/DBX may select a set as being walked from member to owner when you really want the set walked from owner to member. If this is the case, you must deselect the set and then select it again using a manual selection.

For a data structure containing recursive records (records that are accessed by more than one set type in the same path), CA-IDMS/DBX sets the number of levels to extract to zero. You may need to modify this value. Refer to 2.3.3, "Recursive Data Structures" on page 2-9 for more information.

2.4.4 Deselecting Previously Selected Records/Sets

To remove records/sets from a path definition or to delete an entire path definition, you may deselect a path set, an Entry Record or Entry Index, or an area. Deselection of:

- An Entry Record/Entry Index deletes the entire path definition.
- An area deselects all Entry Records residing in the area.
- A path set deselects all sets in the path accessed after the deselected set. The deselection process stops at recursive records. However, sets selected in the path after recursive records are not deselected.

Deselection causes all Record Level Selection Criteria to be removed from the record, including all Field Level Selection Criteria. Once deselected, a record or set can be selected again.

2.4.5 Terminating Record Level Selection Criteria

When you tell CA-IDMS/DBX to terminate the specification for the current specification session, by typing the END command or pressing the End PF key at the Record Level Selection screen, the session may not be complete. There may be record types in selected path-record sets for which Record Level Selection Criteria have not been specified. CA-IDMS/DBX flags the specification so that you are not able to use it without completing it.

CA-IDMS/DBX indicates whether or not the specification is complete at the time the Record Level Selection Criteria screen is displayed.

Chapter 3. Online Session

3.1	Getting Started	3-4
3.2	Signing on to CA-IDMS/DBX	3-5
3.3	Online Documentation	3-6
3.3.1	Online Documentation Message Facility	3-6
3.4	CA-IDMS/DBX Screens	3-7
3.5	Transfer Facility	3-8
3.6	Typical Session Activities	3-9
3.6.1	Naming the Source and Target Subschemas	3-9
3.6.2	Creating a Selection Criteria Specification	3-9
3.6.3	Running the Batch Components	3-10
3.7	A Sample Selection Criteria Specification Session	3-11
3.7.1	Step 1. Sign On to CA-IDMS/DBX	3-12
3.7.2	Step 2. Specify the Source and Target Subschemas	3-13
3.7.2.1	Rules for Source and Target Subschemas	3-15
3.7.3	Step 3. Define the Database Path	3-15
3.7.4	Step 4. Limit the Number of Records Displayed	3-16
3.7.5	Step 5. Select the Entry Record	3-17
3.7.6	Step 6. Define Record Level Selection Criteria--DEPT Record	3-18
3.7.7	Step 7. Select Sets for the Extract Component	3-19
3.7.8	Step 8. Define Record Level Selection Criteria--TEACHER Record	3-20
3.7.9	Step 9. Select Additional Record/Sets	3-21
3.7.10	Step 10. Return to the Database Entry Point Selection Menu Screen	3-22
3.7.11	Step 11. Return to the Specify Database Extract Specification Screen	3-23
3.7.12	Step 12. Edit JCL	3-23
3.7.13	Step 13. Submit JCL for Execution	3-25
3.7.14	Step 14. Sign Off From CA-IDMS/DBX	3-25
3.7.14.1	How Specifications and JCL Members are Saved	3-26
3.8	Additional Screens	3-27
3.8.1	Specify Specification List Screen	3-27
3.8.2	Begin Edit Record Selection List Screen	3-28
3.8.3	Index Entry Point Selection List Screen	3-29
3.8.4	Area Deselection Screen	3-29
3.8.5	Entry Record/Index Deselection Screen	3-30
3.8.6	Path Set Deselection Screen	3-31
3.8.7	Field Level Selection Criteria Screen	3-32
3.8.8	Record/Element Review Screen	3-33
3.8.8.1	Example	3-33
3.8.8.2	Record/Element Display & Modification Commands	3-34
3.8.8.3	DISPLAY Command	3-35
3.8.8.4	Rule for the DISPLAY Command	3-35
3.8.8.5	EXIT Command	3-35
3.8.8.6	INITIALIZE Command	3-36
3.8.8.7	QUIT Command	3-36
3.8.8.8	SET AUTOHEX Command	3-36
3.8.8.9	SET HEX/NATIVE Command	3-36
3.8.8.10	SET LOWERCASE Command	3-37
3.8.9	Field Level Criteria Deselection Screen	3-37

3.8.10	Confirm Subschema Record Date Screen	3-38
3.8.11	Field Mismatch Screen	3-39
3.8.12	Utilities Menu Screen	3-39
3.8.12.1	Deleting, Printing, or Renaming Selection Criteria Specifications	3-40
3.8.12.2	Deleting, Printing, or Renaming JCL Members	3-40
3.8.12.3	Copying Selection Criteria Specifications or JCL Members	3-40
3.8.13	Specification Utilities Screen	3-40
3.8.13.1	Deleting a Selection Specification	3-40
3.8.13.2	Renaming a Selection Criteria Specification	3-41
3.8.13.3	Printing a Selection Criteria Specification	3-41
3.8.14	JCL Utilities Screen	3-41
3.8.14.1	Deleting a JCL Member	3-41
3.8.14.2	Renaming a JCL Member	3-42
3.8.14.3	Printing a JCL Member	3-42
3.8.15	Copy Utility Screen	3-42
3.8.15.1	Copying a Selection Criteria Specification	3-42
3.8.15.2	Copying a JCL Member	3-43

This chapter presents an overview of a typical CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX) online session. It describes how to sign on and sign off CA-IDMS/DBX and introduces the CA-IDMS/DBX screens.

3.1 Getting Started

This chapter presents an overview of a typical CA-IDMS/DBX online session. It describes:

- Signing on to CA-IDMS/DBX
- Online documentation for CA-IDMS/DBX
- Using CA-IDMS/DBX screens
- Performing typical CA-IDMS/DBX session activities
- Signing off of CA-IDMS/DBX.

3.2 Signing on to CA-IDMS/DBX

Follow the steps below to sign on to CA-IDMS/DBX (unless your DBA or security administrator has implemented a different procedure):

1. Access your online CA-IDMS/DC system.
2. At the CA-IDMS/DC system prompt, type the task code assigned to the CA-IDMS/DBX system and press the ENTER key. Obtain the task code, which is assigned at the time of installation, from your DBA. The default is **DBX**.

The CA-IDMS/DBX Main Menu screen is displayed.

3.3 Online Documentation

At any point in a CA-IDMS/DBX session, you can use the **HELP** command or the Help PF key to access the online documentation, which includes:

- Information about the CA-IDMS/DBX screens
- Complete details about each of the commands, options, and keys used to edit a JCL member
- The CA-IDMS/DBX online message facility.

To access the online documentation:

- Select option **T** at the Main Menu screen or
- Enter the **HELP** command in the command field of any CA-IDMS/DBX screen or
- Use the PF key associated with the **HELP** command.

You can print the text for all CA-IDMS/DBX online documentation and messages using the Online Documentation Print Utility. See Chapter 5, “Operations” for detailed information on using the Online Documentation Print Utility.

3.3.1 Online Documentation Message Facility

CA-IDMS/DBX allows you to view message text online.

To access the Message Index screen:

1. Access the online documentation
2. Type **M** in the **OPTION** field of the first screen of any CA-IDMS/DBX online documentation module.
3. Press the **ENTER** key.

The Message Index screen is displayed. To view the message text:

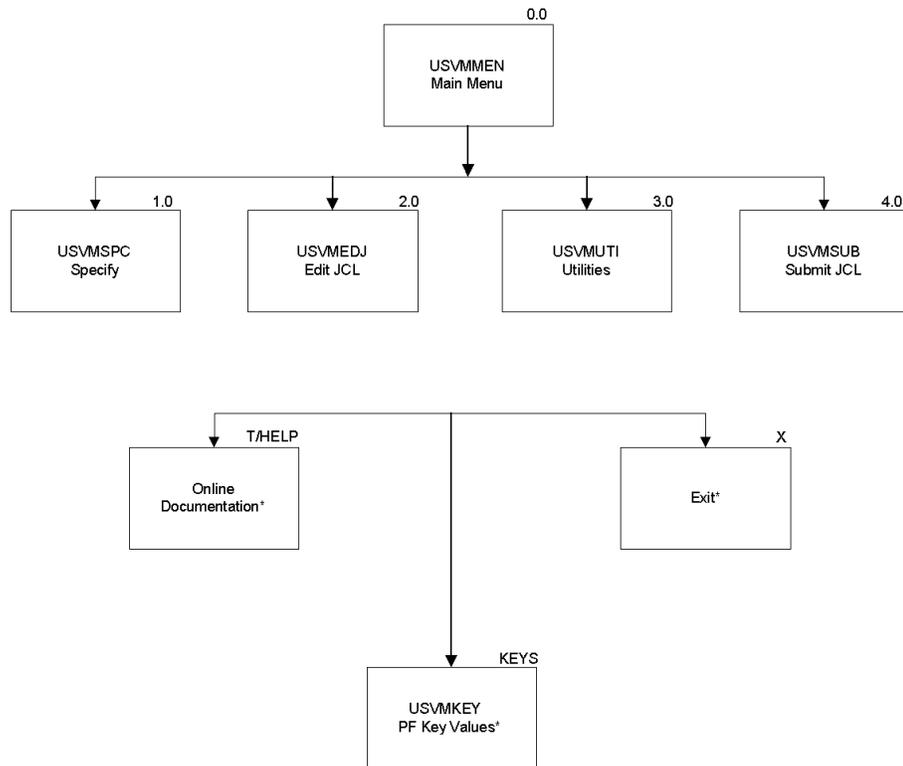
1. Type the message number in the **INDEX** field of the Message Index screen.
2. Press the **ENTER** key.

The text for that message is displayed.

You can print the text for all CA-IDMS/DBX messages using the Computer Associates Online Documentation Print Utility. See Chapter 5, “Operations” for detailed information on using this utility.

3.4 CA-IDMS/DBX Screens

CA-IDMS/DBX is menu-driven. The diagram below shows a logical overview of the system. To perform some of the functions, several screens may be used. Each screen and its associated fields are described in detail in the online documentation that you can access from any CA-IDMS/DBX screen by using the HELP command or the appropriate PF key.



*You can invoke these functions from any screen

Exhibit 3.1: Logical System Overview

3.5 Transfer Facility

The Transfer Facility allows you to move between major components of CA-IDMS/DBX without returning to the Main Menu screen. An equal sign followed by an alphanumeric string (=3.1) or the option command name (=SUTIL) transfers you to the function you want. The available transfer commands are shown below.

System Level	Assigned Value	Option Command
CA-IDMS/DC	=X	
Main Menu	=0	=MENU
Specify Database Extract Specification	=1	=SPECIFY
Edit JCL	=2	=JCL
Edit JCL Member List	=2.1	
Utilities Menu	=3	=UTIL
Specification Utilities	=3.1	=SUTIL
Specification Utilities List	=3.1.1	
JCL Utilities	=3.2	=JUTIL
JCL Utilities List	=3.2.1	
Copy Utility	=3.3	=COPY
Submit JCL for Execution	=4	=SUBMIT

Exhibit 3.2: Transfer Facility Values and Commands

3.6 Typical Session Activities

There are three categories of activity that you might perform during a typical CA-IDMS/DBX session. Each of these activities are detailed below:

- Naming the source and target subschemas
- Creating a Selection Criteria Specification
- Running the Batch Components of CA-IDMS/DBX.

This section introduces these activities and shows how to access the CA-IDMS/DBX screens where these activities can be performed. Detailed field descriptions and information about how to input data are found in the online documentation.

3.6.1 Naming the Source and Target Subschemas

You must name the source and target subschemas to be used by the Extract and Load Components of CA-IDMS/DBX. Do this naming with the Specify Database Build Specification screen, which is displayed when you select option **1** from the Main Menu screen.

3.6.2 Creating a Selection Criteria Specification

After you have named the source subschema, you must specify the selection criteria CA-IDMS/DBX will use to extract the target database. This may include:

- Selecting particular areas/records/fields/sets
- Limiting the selection of a record type to a specific FROM/TO page range
- Selecting a record by field value(s)
- Selecting a record by direct DBKEY
- Selecting a group of records within a specified page range, beginning with the first record occurrence within the range
- Selecting a group of records within a specified page range beginning with the *nth* occurrence within the range
- Skipping a specified number of records before selecting the next record occurrence
- Specifying the number of levels to be extracted in a bill-of-materials structure
- Specifying whether you want to extract all owners of extracted recursive records
- Limiting the total number of records selected by record type
- Limiting the number of records selected in each set occurrence.

3.6.3 Running the Batch Components

After you have specified the selection criteria, you need to run the Batch Components of CA-IDMS/DBX. To do this:

1. Create a JCL stream. Sample JCL is provided with CA-IDMS/DBX. Edit this JCL to meet the requirements at your site.
2. Submit the JCL for execution.

See Chapter 5, “Operations” for a detailed description of the

3.7 A Sample Selection Criteria Specification Session

The remainder of this chapter takes you through a sample session that includes the following steps:

1. Sign on to CA-IDMS/DBX.
2. Specify the source and target subschemas.
3. Define the database path.
4. Limit the number of records displayed.
5. Select the entry record.
6. Define Record Level Selection Criteria for the DEPT record.
7. Select sets for the Extract Component.
8. Define Record Level Selection Criteria for the TEACHER record.
9. Select additional record/sets.
10. Return to the Database Entry Point Selection Menu screen.
11. Return to the Specify Database Extract Specification screen.
12. Edit JCL.
13. Submit JCL for execution.
14. Sign off from CA-IDMS/DBX.

The data structure diagram for the STUDENT-TEACHER database used in this sample session is shown below.

Information specific to the sample session is shown in each step.

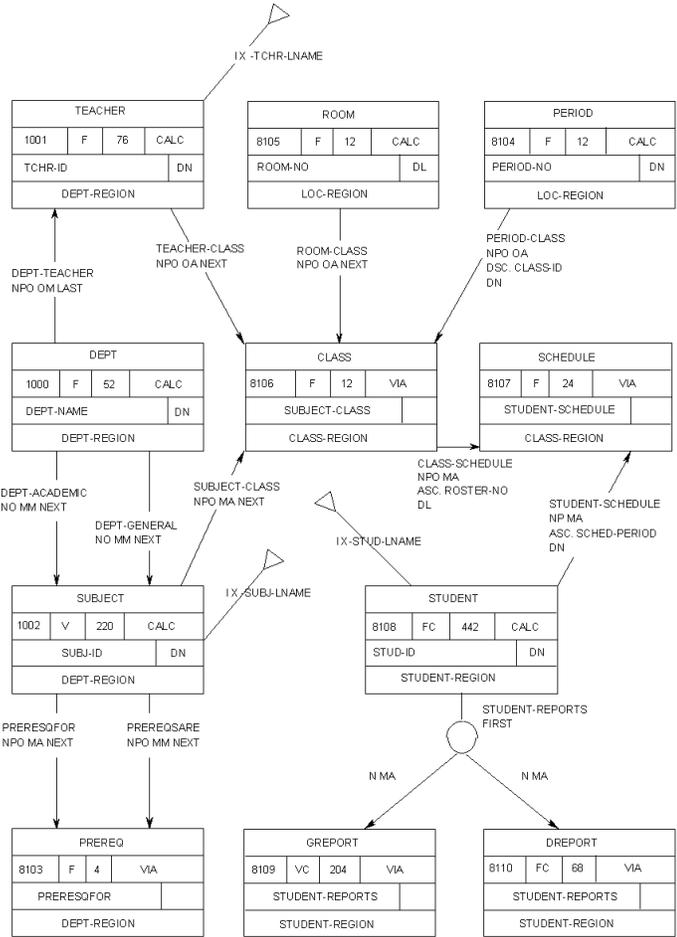


Exhibit 3.3: Data Structure Diagram for the Sample Session

3.7.1 Step 1. Sign On to CA-IDMS/DBX

To sign on to CA-IDMS/DBX:

1. Access your online CA-IDMS/DC system.
2. At the CA-IDMS/DC system prompt, type the task code assigned by your system administrator to CA-IDMS/DBX and press the ENTER key. The default is **DBX**.

The CA-IDMS/DBX Main Menu screen is displayed.

The user ID (or, if you did not sign on to CA-IDMS/DC, the lterm ID) is displayed in the upper right corner of the screen. This ID is the ID under which all specifications and JCL members are saved.

For the sample session: You have signed on to CA-IDMS/DC prior to invoking CA-IDMS/DBX. Your user ID in this example is SMIJO01. Your specifications and JCL members will be saved under the user ID SMIJO01.

```

          CCCCCCCC
          CCCCCCCC                                Rmm.mm UVyymm USVMMEN
          CCC
          CCC      AAAA  USER-ID: VTAMLT05                                mm/dd/yy hh:mm
          CCC      AAAAA
          CCC      AAAAAA                                Database Extractor (DBX)
          CCC AAA AAA  International,
          CCC AAA AAA  Incorporated                                Copyright (c) 1988, 2000
          CCAAACCCCCC                                Computer Associates International, Inc.
          AAACCCCCCC
          AAA      AAA
          AAA      AAA  OPTION ===>
          AAA      AAA

          1 Specify - Specify a Database Extract Selection Criteria Specification
          2 Edit JCL - Edit Execution JCL
          3 Utilities - Perform Utility Functions
          4 Submit - Submit JCL for Execution
          T Tutorial - Display Information (Help) about Database Extractor
          X Exit - Exit Database Extractor

```

Exhibit 3.4: Main Menu Screen

3.7.2 Step 2. Specify the Source and Target Subschemas

The Specify Database Extract Specification screen is shown below.

To access this screen:

1. Type **1** in the OPTION field of the CA-IDMS/DBX Main Menu screen.
2. Press the ENTER key.

The Specify Database Extract Specification screen is displayed.

```

CA-IDMS/DBX Rnn.nn — Specify Database Extract Specification - hh:mm mm/dd/yy
COMMAND ==> USVMSPC

Enter Spec Name and, if a new spec, Subschema and DB Names, press ENTER

Specification
Name ==> dept-teacher (blank for Specification list)

Source Subschema ==> testsub1 DMCL ==> CVMCL
Dictionary Name ==>
Dictionary Node ==>
Database Name ==> (or Segment)
Database Node ==>

Target Subschema ==> loadsub1 DMCL ==> CVMCL
Dictionary Name ==>
Dictionary Node ==>
Database Name ==> (or Segment)
Database Node ==>

Compare Subschemas ==> Y (Y/N)

```

Exhibit 3.5: Specify Database Extract Specification Screen

Because the specification shown in the Name field is a new specification, you must also enter the names of the source and target subschemas. CA-IDMS/DBX allows the same subschema to be named as the source subschema and the target subschema.

For the sample session: The data structure diagram for the STUDENT-TEACHER database shown in Exhibit 3.3. For this sample session, the target database is to consist of DEPT records that own TEACHER records, selected from an existing source database. The other selection criteria follow:

- Define a path that has the DEPT record as an Entry Record
- Extract the first DEPT, and every fifth DEPT record after the first
- Limit the number of extracted DEPT records to 40
- Limit the extracted records to a subset of its from/to page range
- Extract every second TEACHER record in the DEPT-TEACHER set
- Place no limit on the number of TEACHER records.

The name of the specification is DEPT-TEACHER and both source and target databases reside in the primary dictionary for the CV under which you are running.

1. Type **DEPT-TEACHER** in the Specification Name field.
2. Use the TAB key to move to the Source Subschema field and type **TESTSUB1**.
3. Use the TAB key to move to the Source Subschema Database Name field and type **STUDTCHR**.
4. Use the TAB key to move to the Target Subschema field and type **LOADSUB1**.

5. Use the TAB key to move to the Target Subschema Database Name field and type **STUDTCHR**.
6. Press the ENTER key.

The Database Entry Point Selection Menu screen is displayed.

3.7.2.1 Rules for Source and Target Subschemas

All non-system-owned, integrated index records and sets in the source subschema must also be in the target database. The records defined in the source and target subschemas can reside in different areas and can have different page ranges. Additionally, the source and target subschemas must:

- Have record types that are the same length.
- Contain the same record/set relationships. That is, an owner or member of a set in the source database must be an owner or member of the same set type in the target database.
- Be accessible to the online component so that the above rules can be validated. Either subschema can reside in a dictionary load area or in a load/core-image library.

Note: The Compare Subschemas field allows CA-IDMS/DBX to bypass comparison of the source and target subschemas. This allows the batch Database Extract Component of CA-IDMS/DBX to access a database whose subschema is not accessible by the online Selection Criteria Specification component.

3.7.3 Step 3. Define the Database Path

Use the Database Entry Point Selection Menu screen, shown below, to begin the definition of a database path. A database path tells the Extract Component how to walk through your source database. A path must begin with either an Entry Record or an Entry Index.

- If you want to have only one Entry Record or Index, select either Record or Index and enter the name of the record or index on this screen.
- If you want to have more than one Entry Record or Entry Index or cannot recall the names of the records or indexes in the source subschema, select either Area, Record, or Index and leave the associated name field blank. The names of all areas, records, or system-owned integrated indexes in the source subschema are displayed, and you can select from them.

```

CA-IDMS/DBX Rnn.nn— Database Entry Point Selection Menu — hh:mm mm/dd/yy
COMMAND  ===>                               USVMENT

Enter S to Show a list of records residing in the area, or
      S to Select a Record or Index as an Entry point, or
      H to Select a Hierarchy of records starting with the named Record or
      Index as an Entry point (this option is not valid with Area), or
      N to Select a Network of records starting with the named Record or
      Index as an Entry point (this option is not valid with Area), or
      D to Deselect a previously selected (*S) item, press ENTER
Note: Leave the name field blank to obtain a list of names.

S Area
  Area Name  ===>                               (blank for Area Name list)

Record
  Record Name ===>                             (blank for Record Name list)

Index
  Index Name  ===>                             (blank for Index Name list)

An Entry Index must be a System Owned Integrated Index or SPF Index

```

Exhibit 3.6: Database Entry Point Selection Menu Screen

For the sample session: For a list of all areas in the database:

1. Type **S** in the selection field to the left of AREA.
2. Press the ENTER key.

The Area Selection List screen is displayed.

Note: Because we are defining only one path for the sample session Selection Criteria Specification, beginning with the DEPT record, we could have selected Record and filled in the Record Name field with DEPT. However, to illustrate the Area and Record Entry Point Selection List screens, we have selected Area.

3.7.4 Step 4. Limit the Number of Records Displayed

Use the Area Selection List screen to limit the number of records displayed on the Record Entry Point Selection List screen. Select the areas for which you want resident records displayed. An area name is displayed only if it contains at least one user-defined record. Areas containing only integrated index control records are not displayed.

```

CA-IDMS/DBX Rnn.nn  — Area Selection List  ——— hh:mm mm/dd/yy
COMMAND  ===>                                SCROLL ===> PAGE  USVMARE

Enter S to Show a list of records residing in the area(s),
    D to Deselect all Entry Records in a selected (*S) area,
    blank to not show records residing in a selected area, press ENTER

    CLASS-REGION
s   DEPT-REGION
    LOC-REGION
    STUDENT-REGION
**END**

```

Exhibit 3.7: Area Selection List Screen

For the sample session: Because the DEPT record is the only Entry Record and it resides in the DEPT-REGION:

1. Type **S** in the selection field to the left of DEPT-REGION.
2. Press the ENTER key.

The Record Entry Point Selection List screen is displayed.

3.7.5 Step 5. Select the Entry Record

The Record Entry Point Selection List screen is shown below. A list of all records in the area or areas selected on the Area Entry Point Selection screen is displayed. Because the DEPT-REGION was the only area selected, only records residing in the DEPT-REGION are displayed.

```

CA-IDMS/DBX Rnn.nn  — Record Entry Point Selection List  — hh:mm mm/dd/yy
COMMAND  ===>                                SCROLL ===> PAGE  USVMREC

Enter S to Select an Entry Record,
    H to Select a Hierarchy of records starting with the selected Record as
    an Entry Record,
    N to Select a Network of records starting with the selected Record as
    an Entry Record,
    D to Deselect a previously selected (*S) Record,
    blank to not show a previously selected path, press ENTER

s   DEPT
    PREREQ
    SUBJECT
    TEACHER
**END**

```

Exhibit 3.8: Record Entry Point Selection List Screen

For the sample session: You want DEPT to be the only Entry Record.

1. Type **S** in the selection field to the left of the DEPT record.
2. Press the ENTER key.

The Record Level Selection Criteria screen is displayed for the DEPT record.

3.7.6 Step 6. Define Record Level Selection Criteria--DEPT Record

You must define Record Level Selection Criteria for each Entry Record selected or record indexed by an Entry Index and all records selected in subsequent sets within the path definition. This definition is the criteria that the Database Extract Component will use. The Record Level Selection Criteria screen for the DEPT record is shown below.

CA-IDMS/DBX fills in the current Entry Record or Index Name; the current Path Record Name; its from/to page numbers; how the record is accessed; and the area, record, or set name. The record can be accessed by either an area sweep, an Entry Index, or a set walk. In this case, the DEPT record is accessed by an area sweep because it is an Entry Record.

There is also an indication on the screen as to whether the Selection Criteria Specification is complete or not complete. For the example, the Specification is **not** complete.

```

CA-IDMS/DBX Rnn.nn  — Record Level Selection Criteria  — hh:mm mm/dd/yy
COMMAND ==>>>                                     USVMRLS

Entry Record: DEPT
Path Record:  DEPT          From Page:    088001  To Page:    088015
Accessed By:  AREA SWEEP  of area    DEPT-REGION

Enter S to Select, D or blank to Deselect selection criteria, press ENTER.
Note: The specification is currently complete.

      Direct DBKEY          Page ==>>> 0000000000 Line   ==>>> 0000

s Limit Page Range      From Page ==>>> 0000088003 To Page ==>>> 0000088008
s Limit Records of This Type      Total Record Count ==>>> 0000000050
                                   Per Set Occurrence ==>>> 0000000000

s Skip Between Records      Skip Count      ==>>> 0000000004
  First Within Range
  Nth   Within Range          Which Occurrence ==>>> 0000000000

Field Level Selection Criteria      Display Criteria? ==>>> Y (Y/N)

```

Exhibit 3.9: Record Level Selection Criteria Screen--DEPT Record

For the sample session: You want to limit the selection of DEPT records to a subset of its from/to page range, have the first DEPT and every fifth DEPT record after the first selected, and select no more than 40 DEPT records.

1. Type **S** to the left of the Limit Page Range field.
2. Type **88003** in the From Page field and press the EOF key.
3. Type **88008** in the To Page field and press the EOF key.
4. Type **S** to the left of the Limit Records of This Type field.
5. Type **40** in the Record Count field and press the EOF key.

6. Type **S** to the left of the Skip Between Records field.
7. Type **4** in the Skip Count field and press the EOF key.
8. Type **S** to the left of the First Within Range field.
9. Press the ENTER key.

The Path Record Set Selection List screen is displayed.

3.7.7 Step 7. Select Sets for the Extract Component

The Path-Record Set Selection List screen is shown below. Use this screen to select the sets that you want the Extract Component to walk **from the current path record**. All sets owned by the current record and all sets in which the current record participates as a member are displayed, except a set already selected in a path of this specification. The field in front of the set name indicates whether the current record is an owner or member of that set.

CA-IDMS/DBX fills in the current record name and shows how the record is accessed. The DEPT record participates in three sets: DEPT-TEACHER, DEPT-ACADEMIC, and DEPT-GENERAL. The DEPT record is an owner of all of these sets and does not participate as a member in any sets. It is being accessed by an area sweep.

Note: A set can only be selected once in a specification. If you need to access the same set in more than one way, you must define multiple Selection Criteria Specifications. Remember that you can run the CA-IDMS/DBX Database Load Component on a non-empty target database.

```

CA-IDMS/DBX Rnn.nn  Path-Record Set Selection List  hh:mm mm/dd/yy
COMMAND  ===>          SCROLL ===> PAGE  USVMSET

Entry Record: DEPT
Path Record:  DEPT
Accessed By:  AREA SWEEP  of area  DEPT-REGION

Enter S to Select a set (include set in the current path), or
D to Deselect a previously selected (*S) Set (remove set from path), or
END command to terminate the path at current record when creating a new
path, to not process selected sets when viewing an existing path, or
QUIT command to terminate editing of an existing path, press ENTER

Note: You will need to specify Record Level Selection Criteria for each owner
and member record type of all sets included in the path.

Own/Mbr  Set Name
s  Owner  DEPT-TEACHER
   Owner  DEPT-ACADEMIC
   Owner  DEPT-GENERAL
      **END**

```

Exhibit 3.10: Path-Record Set Selection List Screen--DEPT Record

For the sample session: You want to select the DEPT-TEACHER set.

1. Type **S** in the selection field to the left of the DEPT-TEACHER set.
2. Press the ENTER key.

The Record Level Selection Criteria screen is displayed again for you to specify the Record Level Selection Criteria for the next record in the path definition.

3.7.8 Step 8. Define Record Level Selection Criteria--TEACHER Record

Because the DEPT-TEACHER set was included in the path definition, you must define Record Level Selection Criteria for the TEACHER record. The Record Level Selection Criteria screen for the TEACHER record is shown below.

In this case, DEPT is the Entry Record. The current path record for which Record Level Selection Criteria is being defined is the TEACHER record. The TEACHER record will be accessed by walking from the owner (SET-WALK) in the DEPT-TEACHER set.

There is an indication on the screen as to whether this Selection Criteria Specification is complete or not complete. For the example, the specification is **not** complete.

```

CA-IDMS/DBX Rnn.nn  Record Level Selection Criteria  hh:mm mm/dd/yy
COMMAND ==>>>                                USVMRLS

Entry Record: DEPT
Path Record:  TEACHER      From Page:    088001  To Page:    088015
Accessed By:  SET WALK    of area    DEPT-TEACHER  set, walked own to mb

Enter S to Select, D or blank to Deselect selection criteria, press ENTER.
Note: The specification is currently not complete.

Direct DBKEY          Page ==>>> 0000000000 Line   ==>>> 0000
Limit Page Range      From Page ==>>> 0000088001 To Page ==>>> 0000088015
Limit Records of This Type      Total Record Count ==>>> 0000000040
                               Per Set Occurrence ==>>> 0000000000
s Skip Between Records      Skip Count          ==>>> 0000000002
First Within Range
Nth   Within Range          Which Occurrence   ==>>> 0000000000
Field Level Selection Criteria  Display Criteria?  ==>>> Y (Y/N)

```

Exhibit 3.11: Record Level Selection Criteria Screen--TEACHER Record

For the sample session: You want to specify that a TEACHER record should be skipped in between selections:

1. Type **S** to the left of the SKIP BETWEEN RECORDS field.
2. TAB to the SKIP COUNT field, type **2**, and press the EOF key.
3. Press the ENTER key.

The Path Record Set Selection screen is displayed.

If you want to **all** records of this type displayed:

1. Type **A** to the left of the LIMIT RECORDS OF THIS TYPE field.
2. Press the ENTER key.

3.7.9 Step 9. Select Additional Record/Sets

The names of all sets owned by the TEACHER record and all sets in which the TEACHER record participates as a member are displayed on the Path Record Set Selection List screen. If you want to have more records/sets in the path, select the appropriate sets at this time.

Note: After a path set is selected, CA-IDMS/DBX displays the Record Level Selection Criteria screen for all associated owner and member records of selected paths. You must specify Record Level Selection Criteria for all records in the path.

```

CA-IDMS/DBX  Rnn.nn  — Path-Record Set Selection List  ——— hh:mm mm/dd/yy
COMMAND  ===>                                SCROLL ===> PAGE  USVMSET

Entry Record: DEPT
Path Record:  TEACHER
Accessed By:  SET WALK      as member of DEPT-TEACHER      set, walked own to mb

Enter S to Select a set (include set in the current path), or
D to Deselect a previously selected (*S) Set (remove set from path), or
END command to terminate the path at the current record, or
QUIT command to terminate editing of an existing path, press ENTER

Note: You will need to specify Record Level Selection Criteria for each owner
and member record type of all sets included in the path.

Own/Mbr  ——Set Name——
Owner    TEACHER-CLASS
**END**

```

Exhibit 3.12: Path-Record Set Selection List Screen--TEACHER Record

For the sample session: You only want to select the DEPT-TEACHER set. Therefore, the path definition is complete.

1. Press PF3. The Record Entry Point Selection screen is displayed.

```

CA-IDMS/DBX Rnn.nn—— Record Entry Point Selection List — hh:mm mm/dd/yy
COMMAND  ===>                                SCROLL ===> PAGE USVMREC

Enter S to Select an Entry Record,
      H to Select a Hierarchy of records starting with the selected Record as
      an Entry Record,
      N to Select a Network of records starting with the selected Record as
      an Entry Record,
      D to Deselect a previously selected (*S) Record,
      blank to not show a previously selected path, press ENTER

s  DEPT
   PREREQ
   SUBJECT
   TEACHER
   **END**

```

Exhibit 3.13: Record Entry Point Selection List Screen

2. Press PF3. The Database Entry Point Selection Menu screen is displayed.

3.7.10 Step 10. Return to the Database Entry Point Selection Menu Screen

The Database Entry Point Selection Menu is shown below. If you want to define another path, or modify the path just defined, select the appropriate area, record, or index and continue with the definition.

```

CA-IDMS/DBX Rnn.nn—— Database Entry Point Selection Menu — hh:mm mm/dd/yy
COMMAND  ===>                                USVMREC

Enter S to Show a list of records residing in the area, or
      S to Select a Record or Index as an Entry point, or
      H to Select a Hierarchy of records starting with the named Record or
      Index as an Entry point (this option is not valid with Area), or
      N to Select a Network of records starting with the named Record or
      Index as an Entry point (this option is not valid with Area), or
      D to Deselect a previously selected (*S) item, press ENTER
Note: Leave the name field blank to obtain a list of names.

s  Area
   Area Name  ===>                                (blank for Area Name list)

   Record
   Record Name ===>                                (blank for Record Name list)

   Index
   Index Name  ===>                                (blank for Index Name list)

   An Entry Index must be a System Owned Integrated Index

```

Exhibit 3.14: Database Entry Point Selection Menu Screen

For the sample session: The Selection Specification Criteria are complete.

1. Press PF3 to end the specification process. The specification is saved on the CA-IDMS/DBX database.

The Specify Database Extract Specification screen is displayed.

3.7.11 Step 11. Return to the Specify Database Extract Specification Screen

CA-IDMS/DBX returns you to the Specify Database Extract Specification screen shown below. You can edit the specification again, create a new specification, or modify another existing specification. For specifications that you have saved, CA-IDMS/DBX allows you to modify the values that you specified, add new path definitions, or delete old specifications.

```

CA-IDMS/DBX Rnn.nn — Specify Database Extract Specification - hh:mm mm/dd/yy
COMMAND ===>                                     USVMSPC

Enter Spec Name and, if a new spec, Subschema and DB Names, press ENTER

Specification
  Name ===> dept-teacher                          (blank for Specification list)

Source Subschema ====> testsub1  DMCL ===> CVDMCL
  Dictionary Name ===>
  Dictionary Node ===>
  Database Name   ===>                (or Segment)
  Database Node   ===>

Target Subschema ====> loadsub1  DMCL ===> CVDMCL
  Dictionary Name ===>
  Dictionary Node ===>
  Database Name   ===>                (or Segment)
  Database Node   ===>

Compare Subschemas ===> Y (Y/N)

```

Exhibit 3.15: Specify Database Extract Specification Screen

For the sample session:

1. Press PF3.

The CA-IDMS/DBX Main Menu screen is displayed.

3.7.12 Step 12. Edit JCL

You need to create JCL that executes the Extract and Load Components for the selection criteria that you just specified. The Edit JCL Entry screen is shown below.

To access this screen:

1. Type **2** in the OPTION field on the CA-IDMS/DBX Main Menu screen.
2. Press the ENTER key. The Edit JCL screen is displayed.

The Computer Associates EDITOR is invoked from this screen, allowing you to edit the JCL member.

3.7.13 Step 13. Submit JCL for Execution

Use the Submit JCL for Execution screen shown below to submit the JCL you created in the prior step.

To access this screen:

1. Type **4** in the OPTION field on the CA-IDMS/DBX Main Menu screen.
2. Press the ENTER key. The Submit JCL for Execution screen is displayed.

CA-IDMS/DBX creates the correct PROCESS parameter statement for you and bases the parameter statement on the Specification that you enter in the Specification Name field. The parameter statement is placed after the first SYSIPT statement in your JCL.

```

CA-IDMS/DBX Rnn.nn  Submit JCL for Execution  hh:mm mm/dd/yy
COMMAND ===>                                     USVMSUB

Enter JCL Member Name and Specification Name to be submitted, press ENTER.
Note: You need to fill in the rest of the fields if you are having DBX insert
      a parameter statement into the JCL stream.

JCL Member
Name ===> STUDENT-DATABASE                        (blank for Member Name list)

Specification
Name ===> DEPT-TEACHER                            (blank for Specification list)

Insert Parms into JCL? ===> Y (Y/N)      Compare Subschemas? ===> Y (Y/N)

Transient SSC Name   ===>                Extract User Exit   ===>

Create SIGNON stmt? ===> Y (Y/N)      Dictionary Password ===> password
SIGNON User ID ===> HAXMA01

New Source SSC Name  ===>                DMCL Name   ===>
Dict Name/Node =>    /                   DB Name/Node =>    /

```

Exhibit 3.18: Submit JCL for Execution Screen

For the sample session:

1. Press the ENTER key, accepting all of the default values and actions. The Submit JCL for Execution screen is redisplayed with the message DBX0039IJCL SUBMITTED displayed under the COMMAND field.

3.7.14 Step 14. Sign Off From CA-IDMS/DBX

To sign off CA-IDMS/DBX:

- Return to the CA-IDMS/DBX Main Menu screen, type **X** in the OPTION field, and press the ENTER key or
- Type **=X** in the COMMAND/OPTION field of any screen, or press the PF key associated with the **=X** command.

You return to CA-IDMS/DC system prompt.

If you were editing a JCL member or specifying a Selection Criteria Specification when either the **X** or **=X** command is entered, your JCL member or Selection Criteria Specification is saved prior to exiting to CA-IDMS/DC.

Signing off ends your CA-IDMS/DBX session. Any changes you have made to your PF key assignments are saved.

3.7.14.1 How Specifications and JCL Members are Saved

If you are signed onto CA-IDMS/DC when you execute CA-IDMS/DBX, your specifications and JCL members are saved on the CA-IDMS/DBX database under your user ID. If you are not signed onto CA-IDMS/DC when you execute CA-IDMS/DBX, your specifications and JCL members are saved on the CA-IDMS/DBX database under your logical terminal identifier (lterm ID) of the terminal you are using.

If you sign on to CA-IDMS/DC, access CA-IDMS/DBX, and create a Selection Criteria Specification, it is saved on the CA-IDMS/DBX database under your user ID.

If you enter CA-IDMS/DBX again and have not signed on to CA-IDMS/DC, you are not able to access your specifications saved in the previous session.

Conversely if you do not sign on to CA-IDMS/DC, access CA-IDMS/DBX, and create a Selection Criteria Specification, it is saved on the CA-IDMS/DBX database under your lterm ID.

If you enter CA-IDMS/DBX again, either after signing on to CA-IDMS/DC, or after your terminal is given a different lterm ID by CA-IDMS/DC, you are also not able to access your specifications saved in the previous session.

We always recommend that you sign on to CA-IDMS/DC before using CA-IDMS/DBX.

3.8 Additional Screens

The CA-IDMS/DBX screens listed below were not covered in the sample CA-IDMS/DBX session:

- Specify Specification List
- Begin Edit Record Selection List
- Index Entry Point Selection List
- Area Deselection
- Entry Record/Index Deselection
- Path Set Deselection
- Field Level Selection Criteria
- Record/Element Review
- Field Level Criteria Deselection
- Confirm Subschema Record Date
- Field Mismatch
- Utilities Menu
- Specification Utilities
- JCL Utilities
- Copy Utility.

A brief description of each screen is given on the following pages. See the online documentation for additional information about these screens.

3.8.1 Specify Specification List Screen

The Specify Specification List screen, shown below, is displayed when the Specification Name field on the Specify Database Extract Specification screen is left blank. The names of all specifications that you have previously saved are displayed on this screen.

The COMPLETE field indicates whether you have specified Record Level Selection Criteria for ALL selected records/sets in all paths in the specification. If N(o) is shown, you must finish the specification before using it.

To select a specification for viewing or modification:

1. Type **S** in the selection field to the left of the specification name you want to select.
2. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn — Specify Specification List ——— hh:mm mm/dd/yy
COMMAND ==>> SCROLL ==>> PAGE USVMSPL

Enter S to Select a Specification to Edit, press ENTER

———Specification Name——— Created Last Modified Size Complete
s DEPARTMENT-TEACHER mm/dd/yy mm/dd/yy hh:mm 11 Y
**END**

```

Exhibit 3.19: Specify Specification List Screen

3.8.2 Begin Edit Record Selection List Screen

The Begin Edit Record Selection List screen, shown below, is displayed when you specify **Y** in the Begin viewing/editing in the middle of a path definition field on the Specify Database Extract Specification screen. This field is only displayed when viewing a previously saved specification.

Use this screen to bypass the viewing of all the Record Level Selection Criteria and Path-Record Set Selection List screens that would appear if you were to view the path definition beginning with the Entry Record or Index. A list of all records and the sets in which the record participates in, and which are included in your path definition, are displayed on this screen.

The RLSC field indicates whether Record Level Selection Criteria have been specified for the indicated record/set.

The Recursive field indicates whether or not the record in the set is recursive.

To select a record to begin viewing or editing:

1. Type **S** in the selection field to the left of the record name you want to select.
2. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn — Begin Edit Record Selection List ——— hh:mm mm/dd/yy
COMMAND ==>> SCROLL ==>> PAGE USVMBER
DBX0018I EDITING AN EXISTING SELECTION CRITERIA SPECIFICATION

Enter S to Select the record/set at which viewing/editing of an existing path
definition is to begin, or
END command to return to the Specify Database Extract Specification
screen, press ENTER

———Record Name——— —Type— ———Set Name——— Set Walked From RLSC Recursive
DEPT Owner DEPT-TEACHER Entry Record Y N
SUBJECT Member DEPT-ACADEMIC Owner to Member Y N
**END**

```

Exhibit 3.20: Begin Edit Record Selection List Screen

3.8.3 Index Entry Point Selection List Screen

The Index Entry Point Selection List screen, shown below, is displayed when you select Index on the Database Entry Point Selection Menu screen and leave the Index Name field blank.

To select indexes that are to be entry points into the source database (that is, indexes that define the beginning of a path definition):

1. Type **S** in the selection field to the left of the index you want to select as an entry point.
2. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn—— Index Entry Point Selection List —— hh:mm mm/dd/yy
COMMAND  ===>                                SCROLL ===> PAGE  USVMIDX

Enter S to Select an Entry Index,
    H to Select a Hierarchy of records starting with the selected Index as
    an Entry Index,
    N to Select a Network of records starting with the selected Index as
    an Entry Index,
    D to Deselect a previously selected (*S) Index,
    blank to not show a previously selected path, press ENTER

s  IX-SUBJ-LNAME
**END**

```

Exhibit 3.21: Index Entry Point Selection List Screen

3.8.4 Area Deselection Screen

The Area Deselection screen, shown below, is displayed when you deselect an entry area on the Database Entry Point Selection Menu screen.

Deselecting an entry area implies that ALL entry records residing in the area will be deselected. Deselecting an entry record implies that the ENTIRE path definition will be deleted.

Each previously selected area is shown with an *S to the left of its name. To deselect an area, type a **D** to the left of the name you want deselected and press the ENTER key.

When the Area Deselection screen appears, you have two processing options:

- Press the ENTER key to continue with the deselection or
- Type the **END** command or press the End PF key to cancel the deselection.

```

CA-IDMS/DBX Rnn.nn  — Area/Record/Index/Set Deselection  — hh:mm mm/dd/yy
COMMAND ==>>                                     USVMDSL

*****
**
**      WARNING  ————— WARNING  ————— WARNING      **
**
**
**      You are requesting to DESELECT a previously selected AREA      **
**
**              Entry Area:  DEPT-REGION                                **
**
**      Note: Deselecting an Entry Area implies that ALL Entry        **
**            Records residing in the area will be deselected.        **
**
**      Do you want only THIS set deselected or this set and ALL      **
**            selected sets in the path AFTER this set also deselected?  **
**      Enter Deselection Type (T/A) ==>> A                            **
**
**      Press ENTER key to Deselect or enter an END command to cancel.  **
**
*****

```

Exhibit 3.22: Area Deselection Screen

3.8.5 Entry Record/Index Deselection Screen

The Entry Record/Index Deselection screen, shown below, is displayed when you deselect an Entry Record or Entry Index on the Database Entry Point Selection Menu screen.

Deselecting an Entry Record or Entry Index implies that the ENTIRE path definition will be deleted.

Each previously selected Entry Record or Entry Index is shown with an *S to the left of its name. To deselect the Entry Record or Entry Index, type a **D** to the left of the name you want deselected and press the ENTER key.

When the Entry Record/Index Deselection screen appears, you have two processing options:

- Press the ENTER key to continue with the deselection or
- Type the **END** command or press the End PF key to cancel the deselection.

```

CA-IDMS/DBX Rnn.nn  — Area/Record/Index/Set Deselection  — hh:mm mm/dd/yy
COMMAND ==>                               USVMDSL

*****
**
**      WARNING  ————— WARNING  ————— WARNING      **
**
**      You are requesting to DESELECT a previously selected RECORD      **
**
**              Entry Record: SUBJECT                                     **
**
**      Note: Deselecting an Entry Record/Index implies that the         **
**              ENTIRE path definition will be deleted.                   **
**
**      Do you want only THIS set deselected or this set and ALL         **
**      selected sets in the path AFTER this set also deselected?       **
**      Enter Deselection Type (T/A) ==> A                                **
**
**      Press ENTER key to Deselect or enter an END command to cancel.   **
**
*****

```

Exhibit 3.23: Entry Record/Index Deselection Screen

3.8.6 Path Set Deselection Screen

The Path Set Deselection screen is displayed when you deselect a path set on the Path-Record Set Selection List screen. Deselecting a path implies that all sets selected in the path after the deselected set are also deselected. However, the deselected process stops are recursive records. Sets selected in the path after recursive records are not deselected. This allows you to flip-flop the way sets are walked in recursive structures.

Deselecting a path set can have one of two effects:

- **If the path set does not participate in a recursive structure**, deselecting a path set implies that ALL sets selected in the path AFTER the deselected set are also deselected.
- **If the owner-member record of this set participates in a recursive structure** and is therefore accessed by other sets in the path, you have one of the following options:
 - Deselect THIS set only (Option T)
 - Deselect this set and ALL selected sets in the path AFTER this set (Option A).

Thus, you can deselect only one set or flip-flop the way a recursive bill-of-materials structure is walked.

```

CA-IDMS/DBX Rnn.nn  Area/Record/Index/Set Deselection  hh:mm mm/dd/yy
COMMAND ==> USVMDSL

*****
**
**      WARNING  ----- WARNING  ----- WARNING      **
**
**
**      You are requesting to DESELECT a previously selected SET      **
**
**              Path Set:   DEPT-TEACHER      **
**
**      Note: Deselecting a Path Set implies that ALL sets      **
**            selected in the path AFTER the deselected set      **
**            will also be deselected. However, the destination  **
**            process stops at recursive records. Sets selected   **
**            in the path AFTER recursive records will not be    **
**            disecteded.      **
**
**      Press ENTER key to Deselect or enter an END command to cancel.  **
**
*****

```

Exhibit 3.24: Path Set Deselection Screen Non-Recursive Structure

3.8.7 Field Level Selection Criteria Screen

The Field Level Selection Criteria screen, shown below, is displayed when the Field Level Selection Criteria field is selected on the Record Level Selection Criteria screen. This screen is used to select field level criteria for the specified path record.

To define field level selection criteria:

1. Type **S** in the selection field to the left of one of the operands you want to select or type **S** in the selection field to the left of one of the range options you want to select.
2. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn—— Field Level Selection Criteria —— hh:mm mm/dd/yy
COMMAND ===> USVMFLS

Entry Index: DEPT VIEWING Criterion 001 of 002
Path Record: TEACHER
Accessed By: SET WALK as member of DEPT-TEACHER set, walked own to mb

Enter the criterion number you wish to view/edit, or
S to Select one (1) of the operators to be applied against the data you
specify on subsequent Record Element screen(s), or
END command to end viewing/editing field level criteria, press ENTER

Extract a record from the source database if its data is

EQ (=) S NE (=) LT (<) LE (<=) GT (>) GE (>=)

the data specified on the following Record Element screen, OR

Within Not Within

the range of data specified on the following two Record Element screens.

Despecify Character for Record Element screen ===> \

```

Exhibit 3.25: Field Level Selection Criteria Screen

3.8.8 Record/Element Review Screen

The Record/Element Review screen, shown below, is displayed after selecting an operand on the Field Level Selection Criteria screen. This screen is used to specify values that CA-IDMS/DBX uses to determine which records to extract from the source database.

3.8.8.1 Example

To have CA-IDMS/DBX select records where the DEPT-ROOM-NO is not equal to zero:

1. Type **0** for all the field values for the DEPT-ROOM-NO field and press the EOF key.

When values are entered in multiple fields, each field must satisfy the condition or database record will not be extracted. In this example, DEPT-ROOM-NO(1) must be not=0 **and** DEPT-ROOM-NO(2) must be not=0, etc. for the database record to be extracted.

2. Type the **END** command or press the End PF key to save the criteria and return to the Field Level Selection Criteria screen.

At this time, another criteria can be specified by selecting another operator and pressing the ENTER key again. In this situation, the database record would be extracted if its data satisfied either Criteria 1 **or** Criteria 2.

```

GSI Rnn.nn _____ Record/Element Review _____ hh:mm mm/dd/yy
COMMAND ==> _____ GSIRECC0
TDB0077I MODIFY FIELD SELECTION DATA FOR "NOT_EQUAL" (NE) CONDITION
RECORD: DEPT V 6 _____ DICT:
_____ DSPEC: \ LINE 0001 OF 009

02 DEPT-NAME..... A
02 DEPT-HEAD..... A
02 DEPT-ROOM..... G
05 DEPT-ROOM-NO(0001)..... P 000
05 DEPT-ROOM-NO(0002)..... P 000
05 DEPT-ROOM-NO(0003)..... P 000
05 DEPT-ROOM-NO(0004)..... P 000
05 DEPT-ROOM-NO(0005)..... P 000
05 DEPT-ROOM-NO(0006)..... P 000

```

Exhibit 3.26: Record/Element Review Screen

3.8.8.2 Record/Element Display & Modification Commands

The following commands are active at the Record/Element Review screen:

Command	Function
DISPLAY	Redisplay the record after using the SET command.
EXIT	Leave the record display and return to the CA-IDMS/TDB session.
INITIALIZE	Ensure that all record element descriptions are available and initialize elements to null values.
QUIT	Leave record display, terminate the CA-IDMS/TDB session, and return to the CA-IDMS/DC system prompt.
SET HEX/NATIVE	Change the display format to/from hexadecimal format.
SET AUTOHEX	Change the display format of any element whose data content does not match its picture and/or usage to hexadecimal.
SET LOWERCASE	Change the display format of any element to lowercase.

Exhibit 3.27: Record/Element Display & Modification Commands Summary

```

DISPLAY [CONTINUE]

EXIT

INITialize record-name

QUIT

[SET] AutoHEX < ON >
                \ OFF /

[SET] element < HEX >
                \ NATIVE /

[SET] LowerCASE < ON >
                \ OFF /

```

Exhibit 3.28: Record/Element Display & Modification Commands Syntax Summary

3.8.8.3 DISPLAY Command

DISPLAY [CONTINUE]

Use the DISPLAY command to redisplay the record under review or modification. You must enter this command in order to enact a SET AUTOHEX, SET HEX/NATIVE, or SET LOWERCASE command.

3.8.8.4 Rule for the DISPLAY Command

Record display may exhaust available CA-IDMS/DBX storage before all fields (or occurrences) are formatted. CA-IDMS/DBX responds by displaying a warning message to inform you of this condition. Use the DISPLAY CONTINUE command to begin formatting at the point in the record where storage is exhausted.

3.8.8.5 EXIT Command

eXit

Use the EXIT command to leave the record display and return to the CA-IDMS/TDB session.

3.8.8.6 INITIALIZE Command

INITialize record-name

Use the INITIALIZE command at the Record/Element Review screen to ensure that all record element descriptions are available and to initialize elements to null values appropriate to usage: numeric fields are initialized to zero and others are initialized to spaces.

3.8.8.7 QUIT Command

Quit

Use the QUIT command to leave the record display, terminate the CA-IDMS/TDB session, and return to the CA-IDMS/DC system prompt.

3.8.8.8 SET AUTOHEX Command

```
[SET] AutoHEX  /      \  
                < ON  >  
                \ OFF /
```

Use the SET AUTOHEX command to automatically change the record/element display format of any element whose data contents does not match its PICTURE and/or USAGE to hexadecimal. Items with valid data are not affected.

If ON or OFF is not specified, the option is toggled.

If AUTOHEX is specified while a record is being displayed, enter the DISPLAY command to change the fields on the current display.

3.8.8.9 SET HEX/NATIVE Command

```
[SET] element  /      \  
                < HEX  >  
                \ NATIVE /
```

Use the SET HEX/NATIVE command to change the display format of a specific element to/from hexadecimal format.

The command does not cause the record, group, or element to be displayed. The new mode takes effect only when you enter the DISPLAY command or when a new occurrence of the record is obtained from the database.

When you specify NATIVE at the element level, CA-IDMS/TDB displays the level number and usages of the specified element in the message area.

3.8.8.10 SET LOWERCASE Command

```
[SET] LowerCASE / \
                < ON >
                \ OFF /
```

Use the SET LOWERCASE command to change the display format of any element to lowercase.

If ON or OFF is not specified, the option is toggled.

If LOWERCASE is specified while a record is being displayed, enter the display command to change the fields on the current display.

3.8.9 Field Level Criteria Deselection Screen

The Field Level Criteria Deselection screen, shown below, is displayed when you want to deselect ALL field level selection criteria for a selected record. To deselect the field level criteria, place a **D** to the left of the Field Level Selection Criteria field on the Record Level Selection Criteria screen and press the ENTER key.

When the Field Level Criteria Deselection screen appears, you have two processing options:

- Press the ENTER key to continue with the deselection or
- Type the **END** command or press the End PF key to cancel the deselection.

```
CA-IDMS/DBX Rnn.nn—— Field Level Criteria Deselection —— hh:mm mm/dd/yy
COMMAND ===> USVMDSF

*****
**                                                                 **
**          WARNING —— WARNING —— WARNING          **
**                                                                 **
**          You are requesting to DESELECT previously specified **
**                                                                 **
**                   FIELD LEVEL SELECTION CRITERIA          **
**                                                                 **
**          Entry Record: DEPT                                **
**          Path Record:  TEACHER                             **
**          Accessed By:  SET WALK   of area   DEPT-TEACHER   **
**                                                                 **
**          Note: Continuing with the Deselection will cause all Field Level **
**                   Selection Criteria for the named record to be deleted.  **
**                                                                 **
**          Press ENTER key to Deselect or enter an END command to cancel.  **
**                                                                 **
*****
```

Exhibit 3.29: Field Level Criteria Deselection Screen

3.8.10 Confirm Subschema Record Date Screen

The Confirm Subschema Record Date screen, shown below, is displayed when you are viewing or editing an existing path definition and want to look at Field Level Selection Criteria for a record. If the dictionary has been updated and any element within that record has changed since the last time the specification was saved, this screen is displayed.

The Confirm Subschema Record Date screen warns you that the dictionary has been updated since the last time you specified Field Level Selection Criteria for that record. If elements were added to or deleted from the dictionary, or the lengths of any element changed, you will not be able to use the Field Level Selection Criteria you specified. The name of the record and the date at which the record was updated in the dictionary are displayed.

When the Confirm Subschema Record Date screen appears, you have two processing options:

- Press the ENTER key to continue with the deletion of the Field Level Selection Criteria or
- Type the **END** command or press the End PF key to continue using the Field Level Selection Criteria.

```

CA-IDMS/DBX Rnn.nn—— Confirm Subschema Record Date —— hh:mm mm/dd/yy
COMMAND  ===>                                     USVMCFD

*****
**                                     **
**          WARNING —— WARNING —— WARNING          **
**                                     **
**                                     **
**          The DEPT record in the dictionary was updated as of mm/dd/yy.          **
**          You created and saved Field Level Selection Criteria for                **
**          this record prior to it being updated.                                **
**                                     **
**          If elements were added or deleted or the lengths of any                **
**          elements changed, you will NOT be able to use the                    **
**          Field Level Selection Criteria you specified.                          **
**                                     **
**          Press ENTER to delete the Field Level Selection Criteria.              **
**                                     **
**          Use END command to continue using the Field Level Selection Criteria.  **
**                                     **
*****

```

Exhibit 3.30: Confirm Subschema Record Date Screen

3.8.11 Field Mismatch Screen

The Field Mismatch screen, shown below, is displayed when you are viewing or editing an existing path definition and you want to look at the Field Level Selection Criteria for a record. This screen is displayed after the Confirm Subschema Record Date screen.

The Field Mismatch screen informs you that the dictionary has been updated since the last time you specified Field Level Selection Criteria for the record. The data lengths or displacements of the fields defined in the dictionary no longer match the data lengths or displacements of the fields in your Field Level Selection Criteria.

When the Field Mismatch screen appears, you have two processing options:

- Press the ENTER key to continue with the deletion of the Field Level Selection Criteria or
- Type the **END** command or press the End PF key to return to the Field Level Selection Criteria screen.

```

CA-IDMS/DBX Rnn.nn—— Field Mismatch —— hh:mm mm/dd/yy
COMMAND  ==> USVMFMM
DBX0079E FIELD LEVEL CRITERIA CANNOT BE USED FOR THE DEPT RECORD

*****
**          WARNING —— WARNING —— WARNING          **
**          The data lengths or displacements of fields defined in the **
**          dictionary for the DEPT          record do NOT match      **
**          the data lengths or displacements of fields in the      **
**          Field Level Selection Criteria which was saved on        **
**          the DBX database.                                         **
**          Press ENTER to delete the Field Level Selection Criteria.  **
**          Use END command to return to Field Level Selection Criteria **
**          screen.                                                    **
*****

```

Exhibit 3.31: Field Mismatch Screen

3.8.12 Utilities Menu Screen

The Utilities Menu screen, shown below, is displayed when option **3** (utilities) is specified on the CA-IDMS/DBX Main Menu. The Utilities Menu screen gives you the following options:

3.8.12.1 Deleting, Printing, or Renaming Selection Criteria Specifications

1. Type **1** in the OPTION field.
2. Press the ENTER key. The Specification Utilities screen is displayed.

3.8.12.2 Deleting, Printing, or Renaming JCL Members

1. Type **2** in the OPTION field.
2. Press the ENTER key. The JCL Utilities screen is displayed.

3.8.12.3 Copying Selection Criteria Specifications or JCL Members

1. Type **3** in the OPTION field.
2. Press the ENTER key. The Copy Utility screen is displayed.

```
CA-IDMS/DBX Rnn.nn Utilities Menu hh:mm mm/dd/yy
OPTION ==> 1 USVMUTI

Enter Option, press ENTER

  1 Specification - Delete, Print, or Rename Selection Criteria
    Specifications
  2 JCL Member   - Delete, Print, or Rename JCL Members
  3 Copy        - Copy Selection Criteria Specifications or JCL Members
```

Exhibit 3.32: Utilities Menu Screen

3.8.13 Specification Utilities Screen

The Specification Utilities screen, shown below, is displayed when option **1** is specified on the Utilities Menu screen. The Specification Utilities screen allows you to delete, rename, or print a specification.

3.8.13.1 Deleting a Selection Specification

1. Type **D** in the OPTION field.
2. Type the name of the specification you want to delete in the Name field.
3. Press the ENTER key.

3.8.13.2 Renaming a Selection Criteria Specification

1. Type **R** in the OPTION field.
2. Type the name of the specification you want to rename in the Name field.
3. Type a new name for the specification in the Newname field.
4. Press the ENTER key.

3.8.13.3 Printing a Selection Criteria Specification

The -MODEL-PRINT-SPEC member must first be copied and renamed to PRINT-SPEC then edited to tailor it for your environment. This JCL is submitted to perform the actual printing of the specification.

1. Type **P** in the OPTION field.
2. Type the name of the specification you want to print in the Name field.
3. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn----- Specification Utilities ----- hh:mm mm/dd/yy
OPTION      ==> D                                         USVMSUT

blank - Display Specification List
D - Delete Spec      R - Rename Spec (From "Name" to "Newname")
P - Print Spec

Enter Option and optional Specification Name(s), press ENTER

Specification
Name =====> DEPT-TEACHER          (if option "D", "P", or "R")
Newname ==>                          (if option "R")

```

Exhibit 3.33: Specification Utilities Screen

3.8.14 JCL Utilities Screen

The JCL Utilities screen, shown below, is displayed when option **2** is specified on the Utilities Menu screen. Use the JCL Utilities screen to delete, rename, or print a JCL member.

3.8.14.1 Deleting a JCL Member

1. Type **D** in the OPTION field.
2. Type the name of the JCL member you want to delete in the Name field.
3. Press the ENTER key.

3.8.14.2 Renaming a JCL Member

1. Type **R** in the OPTION field.
2. Type the name of the JCL member you want to rename in the Name field.
3. Type a new name for the JCL member in the Newname field.
4. Press the ENTER key.

3.8.14.3 Printing a JCL Member

The -MODEL-PRINT-JCL member must first be copied and renamed to PRINT-JCL and then edited to tailor it for your environment. This JCL is submitted to perform the actual printing of the JCL member.

1. Type **P** in the OPTION field.
2. Type the name of the JCL member you want to print in the Name field.
3. Press the ENTER key.

```

CA-IDMS/DBX Rnn.nn      JCL Utilities      hh:mm mm/dd/yy
OPTION   ==> D          USVMJUT

blank - Display JCL Member List
D - Delete JCL          R - Rename JCL (From "Name" to "Newname")
P - Print JCL

Enter Option and optional JCL Member Name(s), press ENTER

JCL Member
Name =====> STUDENT-DATABASE          (if option "D", "P", or "R")
Newname ==>                               (if option "R")

```

Exhibit 3.34: JCL Utilities Screen

3.8.15 Copy Utility Screen

The Copy Utility screen, shown below, is displayed when option **3** is specified on the Utilities Menu screen. Use the Copy Utility screen to copy a Selection Criteria Specification or JCL member from any CA-IDMS/DBX user ID, including yourself.

3.8.15.1 Copying a Selection Criteria Specification

1. Type **1** in the OPTION field.
2. Type the user ID or lterm ID you want to copy from in the Copy from User-id field.
3. Type the name of the Selection Criteria Specification in the Name field.
4. Type a name for the copied Selection Criteria Specification in the Newname field.
5. Press the ENTER key.

3.8.15.2 Copying a JCL Member

1. Type 2 in the OPTION field.
2. Type the user ID or Item ID you want to copy from in the Copy from User-id field.
3. Type the name of the JCL member in the Name field.
4. Type a name for the copied JCL member in the Newname field.
5. Press the ENTER key.

```
CA-IDMS/DBX Rnn.nn—— Copy Utility —— hh:mm mm/dd/yy
OPTION   ==> 1                               USVMCPY

    1 - Copy a Selection Criteria Specification
    2 - Copy a JCL Member

Enter Option, From User-id, and optional Name(s), press ENTER

Copy from User-id ==> VTAMLT01

Specification/JCL
Name =====> DEPT-TEACHER                (blank for member list)
Newname ==> NEW-DEPT-TEACHER
```

Exhibit 3.35: Copy Utility Screen

Chapter 4. Reports

- 4.1 CA-IDMS/DBX Audit Reports 4-4
 - 4.1.1 Common Report Header Information 4-4
- 4.2 Extract Audit Report 4-5
 - 4.2.1 Processing Messages and Statistics 4-5
 - 4.2.2 Areas/Records/Sets Extracted 4-7
 - 4.2.3 Extract Statistics 4-9
- 4.3 Load Audit Report 4-11
 - 4.3.1 Processing Messages 4-11

This chapter describes the Extract Audit Report and the Load Audit Report produced by CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX). Included is an example of each report along with a brief description of each field contained in the report.

4.1 CA-IDMS/DBX Audit Reports

CA-IDMS/DBX produces two audit reports:

- An EXTRACT audit report, and
- A LOAD audit report.

Each report displays information on run times, input parameters, processing statistics, processing options, database statistics, and any processing errors that may have occurred.

See Chapter 6, “Messages” for complete error message information.

4.1.1 Common Report Header Information

Descriptions of the fields common to the headers of both the Extract and Load Audit Reports are shown below.

Rnn.nn The version of CA-IDMS/DBX that was installed, where *nn.nn* represents the release number and the subrelease number.

Report Title

The report shown below is titled: EXTRACT AUDIT REPORT. It is produced by the Database Extract Component of CA-IDMS/DBX. The Database Load Component of CA-IDMS/DBX produces the LOAD AUDIT REPORT.

mm/dd/yy

The date on which the report was run where *mm* indicates the month, *dd* indicates the day, and *yy* indicates the year.

hh:mm:ss

The time at which the report was run where *hh* indicates the hour, *mm* indicates the minute, and *ss* indicates the second. The time is shown in 24 hour format.

nnnn

The page number within the report.

ID	RELEASE Rnn.nn	CA-IDMS/DATABASE EXTRACTOR EXTRACT AUDIT REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE nnnn
----	-------------------	--	------------------	------------------	--------------

Exhibit 4.1: Common Report Header Fields

4.2 Extract Audit Report

Following is a description of the fields that appear on the Extract Audit Report below the header information. See the example of the 4.2, "Extract Audit Report" shown below.

4.2.1 Processing Messages and Statistics

Input parameter statement ruler

Indicates the 80 positions of the parameter statement. Enter all syntax in columns 1 through 72.

INPUT PARAMETER STATEMENTS

List of all parameter statements input for this execution of CA-IDMS/DBX.

SOURCE PSUB STORAGE REQUIRED

The amount of storage, in bytes, required for building the pseudo subschema table of the source subschema.

TARGET PSUB STORAGE REQUIRED

The amount of storage, in bytes, required for building the pseudo subschema table of the target subschema.

Informative message

Indicates that the Selection Criteria Specification named on the PROCESS parameter statement was successfully retrieved from the CA-IDMS/DBX database.

USING SUBSCHEMA The name of the source subschema used by the Database Extract Component.

EXTRACT STEP STARTED

The date and time at which the EXTRACT step was started in the format *mm/dd/yy* and *hh:mm:ss*.

STORAGE POOL SIZE

The size of the storage pool, in bytes, required for the extract record and save stack.

INITIATING READIES

The names of areas in the source database that were successfully readied for processing. These areas are always readied in shared retrieval mode.

BEGINNING SWEEP

The date and time CA-IDMS/DBX began walking an index in the format *mm/dd/yy* and *hh:mm:ss*.

END OF AREA SWEEP

The date and time CA-IDMS/DBX ended walking of an index in the format *mm/dd/yy* and *hh:mm:ss*.

EXTRACT STEP ENDED

The date and time at which the EXTRACT step ended in the format *mm/dd/yy* and *hh:mm:ss*.

EXTRACTS WRITTEN

The total number of extracts written.

DBX PROCESSING EXTRACTS

The number of extracts required by the EXTRACT step to describe the Specification's Path (or paths).

ID	RELEASE Rnn.nn	CA-IDMS/DATABASE EXTRACTOR EXTRACT AUDIT REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE nnnn
		V-----1-----2-----3-----4-----5-----6-----7-V			
NKWP091I	INPUT PARAMETER STATEMENT	PROCESS,LTERM=VTAML05,SPECNAME=DEPT-TEACHER,			
NKWP092I	CONTINUATION STATEMENT	PASSWORD=?????			
PARM002I	NO PARAMETER ERRORS DETECTED				
NKWP094I	END OF PARAMETER INPUT				
PSUB003I	SOURCE PSUB STORAGE REQUIRED.....18,072 BYTES				
PSUB003I	TARGET PSUB STORAGE REQUIRED.....18,072 BYTES				
RETS001I	THE SPECIFICATION WAS SUCCESSFULLY RETRIEVED				
RETS005I	RETRIEVING SUBSCHEMA TESTSUB1; USING DICTNAME **NONE**, DICTNODE **NONE**				
XTRC001I	USING SUBSCHEMA TESTSUB1; COMPILED mm/dd/yy hh:mm:ss; DMCL CVDML DBNAME STUDTCHR				
XTRC002I	EXTRACT STEP STARTED mm/dd/yy hh:mm:ss				
XTRC003I	STORAGE-POOL SIZE.....5,856 BYTES				
XTRC004I	INITIATING RECORD BINDS				
XTRC005I	INITIATING READIES				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA CLASS-REGION				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA DEPT-REGION				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA INDX2-REGION				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA INDX3-REGION				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA LOC-REGION				
	READY SHARED RETRIEVAL SUCCESSFUL FOR AREA STUDENT-REGION				
XTRC006I	BEGINNING SWEEP OF AREA DEPT-REGION mm/dd/yy hh:mm:ss				
XTRC007I	END OF AREA SWEEP mm/dd/yy hh:mm:ss				
XTRC012I	EXTRACT STEP ENDED mm/dd/yy hh:mm:ss				
XTRC013I	EXTRACTS STATISTICS . . .				
	EXTRACTS WRITTEN.....128				
	DBX PROCESSING EXTRACTS.....9				

Exhibit 4.2: Extract Audit Report Processing Messages and Statistics

4.2.2 Areas/Records/Sets Extracted

The following fields display the areas, records, and sets that participated in the extraction. See the example shown below.

SUBSCHEMA The name of the source subschema named in the specification or overridden in the PROCESS statement.

DICTNAME The name of the source dictionary named in the specification or overridden in the PROCESS statement.

DICTNODE

The name of the source node named in the specification or overridden in the PROCESS statement.

DBNAME

The name of the source database named in the specification or overridden in the PROCESS statement.

DBNODE

The name of the source database node named in the specification or overridden in the PROCESS statement.

AREA Name of the area containing records that were extracted.

Area Sweep Option

If there were entry records in the area, the indicator reads SWEEP. If all entry records were retrieved by either direct DBKEY or CALC key, or there were no Entry Records in the area, the indicator reads NOSWEEP.

LOPAGE

Low page number of the area.

HIPAGE

High page number of the area.

FROM

Page number at which area sweeping began.

TO

Page number at which area sweeping ended. The FROM/TO page numbers differ from the LOPAGE and HIGHPAGE numbers only if you specified a FROM/TO page number on a Record Level Selection Criteria screen. FROM/TO page numbers are all asterisks if the area was not swept.

Set Name

Name of a set included in a path that has an owner or member residing in the named area.

Access Method

The method by which the set, listed in the SET Name field, was accessed.

Record Name

Name of a record residing in the area listed in the Area field. The record was either an Entry Record or an owner or a member of a set included in a path.

Record Level Selection Criteria

A summary of the data entered on the Record Level Selection Criteria screen for the record listed in the Record Name field. If a particular selection criteria was not entered for the record, all asterisks appear within the parentheses.

ID	RELEASE Rnn.nn	CA-IDMS/DATABASE EXTRACTOR EXTRACT AUDIT REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE nnnn
SPECIFICATION: DEPT-TEACHER					
***** ***** A R E A S / R E C O R D S / S E T S E X T R A C T E D ***** *****					
SUBSCHEMA...TESTSUB1 DICTNAME **NONE**; DICTNODE **NONE**; DBNAME STUDTCHR; DBNODE **NONE**					
AREA...CLASS-REGION	NOSWEEP	LOPAGE (****89,001) HIPAGE(****89,030) FROM(******) TO(******)			
SET...CLASS-SCHEDULE		WALKED FROM CLASS - OWNER TO MEMBER			
MEMBER...SCHEDULE		FROM(*****96,001) TO(*****96,020) DBKEY(*****-----) SKIP(******) LIMIT(******) PERSET(******) NTHWR(******) LEVL(******)			
AREA...DEPT-REGION	SWEEP	LOPAGE(****88,001) HIPAGE(****88,015) FROM(****88,001) TO(****88,015)			
ENTRY RECORD.....DEPT		FROM(*****88,001) TO(*****88,015) DBKEY(*****-----) SKIP(******) LIMIT(******) PERSET(******) NTHWR(******) LEVL(******)			
SET...DEPT-TEACHER		WALKED FROM DEPT - OWNER TO MEMBER			
MEMBER.....TEACHER		FROM(*****88,001) TO(*****88,015) DBKEY(*****-----) SKIP(******) LIMIT(******) PERSET(******) NTHWR(******) RECUR LEVL(******)			
SET...DEPT-ACADEMIC		WALKED FROM DEPT - OWNER TO MEMBER			
MEMBER.....SUBJECT		FROM(*****91,001) TO(*****91,080) DBKEY(*****-----) SKIP(******) LIMIT(******) PERSET(******) NTHWR(******) RECUR LEVL(******)			

Exhibit 4.3: Extract Audit Report Areas, Record, and Sets Extracted

4.2.3 Extract Statistics

The following fields of the Extract Audit Report display statistical information. See the example shown below.

AREA NAME Name of the area containing records which were extracted.

PAGES SWEEPED Number of pages swept within the area listed in the AREA NAME field. The number is zero if:

- All entry records were retrieved by Direct DBKEY or CALC key.
- Entry into an area was only by Entry Index(es).

ENTRY RECORD NAME Name of Entry Record residing in the area listed in the AREA NAME field.

ENTRY RECORDS RETRIEVED Number of entry records retrieved by area sweeping.

ENTRY RECORDS EXTRACTED Number of entry records retrieved that met the Record Level Selection Criteria. An asterisk next to this field indicates that the extraction record limit was reached.

Note: If a set is walked from member to owner, the number of RECORDS RETRIEVED may be greater than the number of actual record occurrences on the database because this value reflects the number of owners retrieved when walking from all member record occurrences. If a set occurrence has 10 member records and the owner was obtained for each of the 10 member records, RECORDS RETRIEVED reflects a count of 10 even though there was

only one physical occurrence of the owner record type. The same situation exists for RECORDS EXTRACTED.

SET NAME

Name of a set in which the record occurrence listed in the OWNER/MEMBER RECORDS NAME field is a participant. The set was included in a path.

OWNER/MEMBER RECORDS NAME The name of the record occurrence that is an owner or member of the set listed in the SET NAME field.

OWNER/MEMBER RECORD OCCURRENCES

Number of record occurrences retrieved when walking set occurrences owned by the record listed in the RECORD NAME field.

OWNER/MEMBER RECORDS EXTRACTED Number of records retrieved which met their Record Level Selection Criteria. An asterisk next to this field indicates that the extraction record limit was reached. See the note above for the ENTRY RECORDS EXTRACTED field.

ID	RELEASE Rnn.nn	CA-IDMS/DATABASE EXTRACTOR EXTRACT AUDIT REPORT			DATE mm/dd/yy	TIME hh:mm:ss	PAGE nnnn
***** ***** E X T R A C T S T A T I S T I C S ***** *****							
-AREA NAME-	-PAGES- -SWEPT-	-----ENTRY RECORD----- ---NAME--- -RETRIEVED- -EXTRACTED- -SET NAME-			-----OWNER/MEMBER RECORDS----- -NAME- OCCURRENCES -EXTRACTED-		
CLASS-REGION	0						
				CLASS-SCHEDULE SCHEDULE	71	0	
DEPT-REGION	15	DEPT	16	16			
				DEPT-TEACHER TEACHER	18	18	
DEPT-ACADEMIC				SUBJECT	126	126	
				DEPT-GENERAL SUBJECT	126	126	
				IX-TCHR-LNAME TEACHER	0	0	
				PREREQSFOR PREREQ	17	17	
				PREREQSFOR PREREQ	17	17	
				SUBJECT-CLASS CLASS	20	20	
LOC-REGION	0						
				ROOM-CLASS ROOM	20	0	
STUDENT-REGION	0						
** TOTALS **	-----	15	-----	-----	415	-----	324

Exhibit 4.4: Extract Audit Report Extract Statistics

4.3 Load Audit Report

A description of the fields appearing on the Load Audit Report is given below. See the example of the report shown below in Exhibit 4.5.

4.3.1 Processing Messages

LOAD STEP STARTED

The date and time at which the LOAD step was started in the format *mm/dd/yy* and *hh:mm:ss*.

TARGET PSUB STORAGE REQUIRED

The amount of storage, in bytes, required for building the pseudo subschema table of the target subschema.

EXTRACTED/LOADING USING SUBSCHEMA

The name of the source subschemas used by the EXTRACT step, and the target subschema used by the LOAD step, respectively.

INITIATING READIES

The names of areas in the target database that were successfully readied for processing, and the ready mode.

STORE STEP STARTED/STORE STEP ENDED

The date and time CA-IDMS/DBX began/ended storing records on the target database in the format *mm/dd/yy* and *hh:mm:ss*.

TOTAL EXTRACTS READ

The total number of extracts read.

DBX PROCESSING EXTRACTS READ

The number of processing extracts required by the LOAD step for determining what records and sets participated in the extraction in addition to the header and trailer extracts.

EXTRACTS WRITTEN TO WORKFILE

The number of extracts required by the connect step.

RECORDS STORED

The number of records stored on the target database.

RECORDS W/DUP CALC KEYS

The number of CALC records that would have violated a DUPLICATES NOT ALLOWED restriction. This situation occurs only if you load a populated database.

CONNECT STEP STARTED/CONNECT STEP ENDED The date and time at which CA-IDMS/DBX began/ended connected member records into their set occurrences in the format mm/dd/yy and hh:mm:ss.

OWNER RECORDS OBTAINED

The number of set occurrences loaded that had member records. **MEMBER RECORDS CONNECTED**

The number of member records connected.

MANUAL INDEX SET CONNECTIONS

The number of member records, with a set connect option of MANUAL, connected to system-owned, integrated indexes. The records were connected to the same index in the source database.

LOAD STEP ENDED

The date and time at which the LOAD step ended in the format mm/dd/yy and hh:mm:ss

ID	RELEASE Rnn.nn	CA-IDMS/DATABASE EXTRACTOR LOAD AUDIT REPORT	DATE mm/dd/yy	TIME hh:mm:ss	PAGE 0001
LOAD001I		LOAD STEP STARTED.....mm/dd/yy			
RETS005I		RETRIEVING SUBSCHEMA TRANSSUB; USING DICTNAME TESTDICT; DICTNODE TESTNODE			
PSUB003I		TARGET PSUB STORAGE REQUIRED.....18,072 BYTES			
LOAD006I		EXTRACTED USING SUBSCHEMA DBRR1016; COMPILED mm/dd/yy hh:mm:ss			
LOAD007I		LOADING USING SUBSCHEMA TRANSSUB; COMPILED mm/dd/yy hh:mm:ss			
LOAD008I		INITIATING RECORD BINDS READY PROTECTED UPDATE SUCCESSFUL FOR AREA CLASS-REGION READY PROTECTED UPDATE SUCCESSFUL FOR AREA DEPT-REGION			
LOAD009I		STORE STEP STARTED.....mm/dd/yy hh:mm:ss			
LOAD010I		STORE STEP ENDED.....mm/dd/yy hh:mm:ss			
LOAD011I		STORE STEP STATISTICS TOTAL EXTRACTS READ.....745 DBX PROCESSING EXTRACTS READ.....21 EXTRACTS WRITTEN TO WORKFILE.....382 RECORDS STORED.....197 RECORDS W/DUP CALC KEYS.....0			

```

ID                RELEASE          CA-IDMS/DATABASE EXTRACTOR          DATE          TIME          PAGE
                   Rnn.nn              LOAD AUDIT REPORT                    mm/dd/yy      hh:mm:ss      0002
*****
***** STORE STATISTICS *****
*****
---RECORD NAME--  ---STORED---  DUP CALC KEYS
CLASS              20              0
DEPT               16              0
PREREQ            17              0
ROOM              0              0
    
```

```

ID                RELEASE          CA-IDMS/DATABASE EXTRACTOR          DATE          TIME          PAGE
                   Rnn.nn              LOAD AUDIT REPORT                    mm/dd/yy      hh:mm:ss      0003
LOAD012I          CONNECT STEP STARTED.....mm/dd/yy  hh:mm:ss
LOAD013I          CONNECT STEP ENDED.....mm/dd/yy    hh:mm:ss
LOAD014I          CONNECT STEP STATISTICS
                   OWNER RECORDS OBTAINED.....58
                   MEMBER RECORDS CONNECTED.....324
                   MANUAL INDEX SET CONNECTIONS.....0
    
```

```

ID                RELEASE          CA-IDMS/DATABASE EXTRACTOR          DATE          TIME          PAGE
                   Rnn.nn              LOAD AUDIT REPORT                    mm/dd/yy      hh:mm:ss      0004
*****
***** CONNECT STATISTICS *****
*****
---SET NAME---    ---OWNER---    ---OCCURRENCES  ---MEMBER-----  ---CONNECTED---
CLASS-SCHEDULE    CLASS          0                SCHEDULE          0
DEPT-TEACHER     DEPT           0                TEACHER           0
    
```

Exhibit 4.5: Load Audit Report Processing Messages

Chapter 5. Operations

5.1 Operational Considerations	5-4
5.2 CA-IDMS/DBX Requirements	5-5
5.2.1 System Requirements	5-5
5.2.1.1 Operating Environment	5-5
5.2.1.2 Terminal Type	5-5
5.2.1.3 Security	5-5
5.2.2 Online Storage Requirements	5-5
5.2.2.1 Program Storage	5-5
5.2.2.2 Working Storage	5-6
5.2.2.3 Scratch Storage	5-6
5.2.2.4 Queue Storage	5-6
5.2.3 Batch Storage Requirements	5-6
5.3 Recovery Procedure	5-8
5.4 Executing CA-IDMS/DBX	5-9
5.4.1 Sample JCL	5-9
5.5 Syntax Notation	5-10
5.5.1 Extract File	5-10
5.5.2 Workfile	5-10
5.5.3 Communication File	5-11
5.5.4 Syntax File	5-11
5.5.5 Allocating Space for DASD Files	5-11
5.6 PROCESS Parameter	5-14
5.6.1 PROCESS Parameter Keywords	5-14
5.7 Performing the EXTRACT and LOAD Steps--USVEXEC	5-18
5.7.1 Running in Local Mode Under OS/390	5-19
5.7.2 Running in Local Mode Under VSE/ESA	5-24
5.7.3 Running in Local Mode Under VM/ESA	5-30
5.8 Printing JCL--USVPJCL	5-41
5.8.1 Running in Local Mode	5-41
5.9 Printing a Selection Criteria Specification--USVPSPC	5-46
5.9.1 Running in Local Mode	5-46
5.10 Printing Online Documentation--USVPRINT	5-51
5.11 Customizing the CA-IDMS/DBX Environment--USVTPARM	5-53
5.12 Writing a User Exit Module--CUVUSRXA	5-55
5.12.1 CUVUSRXA Rules and Guidelines	5-55

This chapter covers CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX) operations. It describes the CA-IDMS/DBX system requirements, storage requirements, and recovery procedures.

5.1 Operational Considerations

Before running CA-IDMS/DBX, consider these operational factors:

- All CA-IDMS conventions regarding locking of the source and target databases are used. To ensure accurate extraction of data from the source database while CA-IDMS/DBX is executing, you may want to prevent other jobs from updating the source database.
- You may either load a new database (that is, a database that was just formatted) or update an existing database. If you update an existing database, unexpected problems may arise if an attempt is made to store or connect a duplicate record unless the store or connect is prevented by a `DUPLICATES NOT ALLOWED` clause.
- The target subschema must reside in a dictionary load area. The Database Load Component of CA-IDMS/DBX requires that all user-defined and non-system owned integrated index sets have a set `CONNECT` option of `MANUAL` and a set `ORDER` of `NEXT` or `SORTED`. Further, if a `SORTED` set allows duplicates, and the source database was created with duplicates `FIRST`, the target database must be created with `DUPLICATES LAST`. To assist in complying with these requirements, a transient (temporary) subschema is created from the specified target so that you do not have to create a special target schema/subschema for CA-IDMS/DBX use. The transient subschema is added to the target dictionary, used by the Database Load Component, and subsequently deleted from the target dictionary. Optionally, the transient subschema may be linked into a load library that is defined as a `STEPLIB` for the Database Load Component.

5.2 CA-IDMS/DBX Requirements

The system requirements and storage requirements for executing both the Online and Batch Components of CA-IDMS/DBX are outlined below.

5.2.1 System Requirements

The system requirements of CA-IDMS/DBX are as follows:

5.2.1.1 Operating Environment

CA-IDMS/DBX supports the following product releases:

- CA-IDMS Release 15.0
- CA-IDMS/DC Release 15.0

5.2.1.2 Terminal Type

The online components of CA-IDMS/DBX can be used from any 3270-compatible terminal, model 2, 3, 4, or 5.

5.2.1.3 Security

Normal CA-IDMS/DC security applies when using the Online Components of CA-IDMS/DBX. You can access only selection criteria specifications and JCL members that you create during the current session, or that you have previously created and saved. Your ability to access to other users' Selection Criteria Specifications and JCL members is controlled using the CA-IDMS/DBX customization macro described in this chapter.

5.2.2 Online Storage Requirements

CA-IDMS/DBX requires program storage, working storage, scratch storage, and queue storage.

5.2.2.1 Program Storage

All CA-IDMS/DBX modules are reentrant. Therefore, one copy supports multiple users. All modules, except modules related to the following functions, are pseudo-conversational:

- Recovery
- Area/Record/Index/Set Deselection
- Online Documentation.

The total program storage requirement for the CA-IDMS/DBX online modules is approximately 750K. In addition, the Edit JCL function, which uses the Computer Associates EDITOR, requires 120K of program storage.

5.2.2.2 Working Storage

Each user that is currently executing a command uses between 10K and 20K of working storage, depending upon the function being performed. In addition, each active user shares the program storage, which is noted above.

5.2.2.3 Scratch Storage

Scratch records are used during the session to store information about the executing task. Approximately 4K of scratch area are used per task. The EDIT JCL function uses an additional 1K of scratch area for every 10 lines of source code.

5.2.2.4 Queue Storage

CA-IDMS/DBX does not use CA-IDMS/DC queue storage.

5.2.3 Batch Storage Requirements

CA-IDMS/DBX batch storage requirements depend on the size of the source and target subschemas, the size of the largest database record included in a database path, sort storage requirements, and whether the components are run under a central version (CV) or in local mode. Exhibits 5.1 and 5.2 show the amount of storage required for the Database Extract and Database Load Components, respectively, when executing the components under a CV. If the components are to run in local mode, additional storage is required for:

- CA-IDMS runtime system modules
- Journal and database buffers.

Category	Description
Database Extract Component	250K - size of the largest module loaded into virtual storage at one time for the Batch Database Extract Component.
File Buffers	Size of the operating system buffers for the files used by the Database Extract Component.
Pseudo Subschema	Approximately 3 times the size of the source or target subschemas.
Extract Record	Size of the largest database record being extracted plus 28 bytes, or 256 bytes, whichever is greater.
Set Stack Area	8K - size of area for saving set information when walking sets.

Exhibit 5.1: Batch Storage Requirements--EXTRACT Step

Category	Description
Database Load Component	100K - size of the largest modules loaded into virtual storage at one time for the batch Database Load Component.
File Buffers	Size of the operating system buffers for the files used by the Database Load Component.
Pseudo Subschema	Approximately 3 times the size of the target subschema.
Extract Record	Size of the largest database record being extracted plus 28 bytes, or 256 bytes, whichever is greater.
Sort Storage	Use you installation's default sort storage.

Exhibit 5.2: Batch Storage Requirements--LOAD Step

5.3 Recovery Procedure

During a CA-IDMS/DBX session, information is stored in the scratch area. While editing a JCL member, the member you are editing is also stored in the scratch area. In the event of an abend, you can recover the changes you have made since your last save only if the scratch area is left intact. If CA-IDMS/DBX abends, the scratch area is unaffected and recovery is possible unless you were in the middle of an online Selection Criteria Specification session. If your system goes down, the scratch area is lost.

When an abend does occur, you are returned to the CA-IDMS/DC prompt and a message is displayed. When you invoke CA-IDMS/DBX again, you are returned to the point in the session when the abend occurred.

5.4 Executing CA-IDMS/DBX

Once a Selection Criteria Specification is created, you must run the Database Extract Component to extract data from the source database and the Database Load Component to load the extracted data onto the target database.

- **To run the load and extract batch components**, use the model JCL and key contained in Target or Distribution source library member USVEXEC (OS/390), TOOLJCL library member USVEXEC.S (VSE/ESA), or the USVEXEC EXEC (VM/ESA).
- **To run the JCL Member Print Utility**, use the model JCL and key found in Target or Distribution source library member USVPJCL (OS/390), TOOLJCL library member USVPJCL.S (VSE/ESA), or the USVPJCL EXEC (VM/ESA)
- **To run the Specification Print Utility**, use the model JCL and key found in Target or Distribution source library member USVPSPC (OS/390), TOOLJCL library member USVPSPC.S (VSE/ESA), or the USVPSPC EXEC (VM/ESA).

The sample JCL and keys for these components and utilities are shown below.

5.4.1 Sample JCL

When CA-IDMS/DBX is installed, sample JCL is loaded onto the CA-IDMS/DBX database by USVUJCL. This sample JCL is associated with the user ID of DBXADMIN. When you access the Edit JCL Component, if you do not already have a copy of the sample JCL, it is copied to your user ID. You must edit the JCL, using the JCL Editor Component, to tailor it to your environment. You can copy the JCL member first, using the JCL Utilities Component, to a name of your choice so that the original model JCL is not modified.

5.5 Syntax Notation

Example	Function
Process=	Keywords appear in mixed case. The minimum required portion of each keyword appears in uppercase.
JCLMBR=jcl-member-name	Variables appear in lowercase. You substitute an appropriate value for each variable.
[PASSWORD=dictionary-password]	Brackets indicate optional clauses or commands.
TRANSSub= < target-subschema-name > / transient-subschema-name \ \ /	Braces enclose two or more options. You must select one of them.

Exhibit 5.3: Notation Conventions

5.5.1 Extract File

Information extracted from the source database by the Database Extract Component of CA-IDMS/DBX is written to the Extract File. The Extract File is a variable-blocked file with an LRECL of 32756 and a BLKSIZE of 32760.

See 5.5.5, “Allocating Space for DASD Files” for more information about the size of this file.

5.5.2 Workfile

The Workfile is a temporary file used by the Database Load Component of CA-IDMS/DBX. Information is saved on the Workfile between sort exits. It is a variable-blocked file.

5.5.3 Communication File

The Communication File (COMMMFILE) contains a single record which is used to pass information between the CA-IDMS/DBX Batch Components.

5.5.4 Syntax File

Appropriate CA-IDMS DDDL syntax is written to the Syntax File by various batch components of CA-IDMS/DBX to:

- PUNCH the target database from the target dictionary
- ADD the transient subschema to the target dictionary
- DELETE the transient subschema from the target dictionary.

5.5.5 Allocating Space for DASD Files

CA-IDMS/DBX requires space allocation for an Extract File, a Workfile, a Communication File, a Syntax File, and sort work files. The Syntax and Communication Files are fixed at one track apiece. Space allocation for a DASD Extract File is dependent on the number of database records extracted and on the number of set occurrences in which those records participate as either owner or member. The table below displays the type and number of extracts created and written to the Extract File. The work file and total sort work space require the same amount of space as the Extract File.

Type	Length In Bytes	# Of Records Written
header	256	One (1)
trailer	80	One (1)
ssrec	36	One (1) for each selected record type in the source subschema
ssset	36	One (1) for each selected set type in the source subschema
dbrec	28 + data length of selected database record	One (1) for each selected: - Entry Record - owner and member record of each selected set occurrence
index	20	One (1) or more for each index to which a selected record is connected. These are written for records retrieved through an area sweep, index, or set walk. If a selected record is both an entry record (or indexed through an entry index) and a selected owner or member of a selected set occurrence, multiple index extracts are written.

Exhibit 5.4: Type and Number of Extracts Created

Review your Selection Criteria Specification to estimate the number of database records that will be extracted.

The Database Load Component creates a Workfile from the Extract File. You must allocate the same amount of space for the Workfile as the Extract File. The Workfile is also variable-blocked. The Database Load Component calculates the LRECL of the file for you with a BLKSIZE of 6144. You can override this block size.

Provide enough SORT SPACE capacity for the entire Workfile.

```

Process / SPecname=selection-criteria-specification-name, USERId=userid \
< Jclmbr=JCL-member-name, USERId=userid >
\ UNload /

[ , SIGNonid=dictionary-userid[ , Password=dictionary-password]]

[ , TRANSSub=  $\left. \begin{array}{l} \text{transient-subschema-name} \\ \text{target-subschema-name} \end{array} \right\}$  ]

[ , TRANSDmcl=target-DMCL-name]

[ , SRCSub=source-subschema-name]

[ , SRCDMcl=source-DMCL-name]

[ , SRCDICTName=source-dictionary-name]

[ , SRCDICTNode=source-dictionary-node-name]

[ , SRCDBName=source-database-name]

[ , SRCDBNode=source-database-node-name]

[ , USERExit=user-exit-module-name]

[ , NOCmpare]

```

Exhibit 5.5: PROCESS Parameter Syntax Summary

5.6 PROCESS Parameter

All CA-IDMS/DBX parameter input is processed by the Database Extract Component and is obtained from a PROCESS parameter statement. The information tells the Database Extract Component:

- The name of the Selection Criteria Specification
- The user ID or Item ID under which the specification was saved
- The optional name of a transient subschema to be used during Database Load Component processing
- When using a transient subschema, the sign-on ID and password (if required) for the target dictionary
- An optional subschema to be used by the Database Extract Component, instead of the source subschema named in the Selection Criteria Specification
- An optional name of the user exit load module to be invoked whenever a database record meets its Record Level Selection Criteria
- An optional keyword to indicate that the source and target subschemas are not to be compared.

Note: The online JCL Submission Component creates the PROCESS parameter statement and places it in the appropriate position in the JCL when writing the JCL stream to the operating system. This allows you to use a single JCL member for multiple Selection Criteria Specifications that reference the same source and target databases. When using the JCL Submission Component, **do not** include a PROCESS parameter statement in the JCL member. Otherwise, the Database Extract Component issues a parameter error. When USVUJCL uploads the model JCL to the CA-IDMS/DBX database, the PROCESS statement is not uploaded. This description is included in case you want to submit the JCL manually without using the online JCL Submission Component.

5.6.1 PROCESS Parameter Keywords

Process

Must be coded as is. Indicates that PROCESS keywords follow.

USERID=userid

Required keyword if SPECNAME is coded. Used as primary key for selection of a Selection Criteria Specification. This is the user ID or Item ID under which the specification was saved. USERID and UNLOAD are mutually exclusive.

Specname=selection-criteria-specification-name

Required keyword if UNLOAD is not coded. Used as secondary key for selection of a specification created using the online Selection Criteria Specification component. SPECNAME and UNLOAD are mutually exclusive.

UNload

Required keyword if SPECNAME is not coded. Used to unload (extract) the entire database accessible by the SRCSUB subschema. A specification is not used in this case. SPECNAME and UNLOAD are mutually exclusive parameters. In this case, SRCSUB is required and will be used at version 1 as both the source and target subschema.

Signonid=dictionary-userid

Optional based upon whether you are using a transient subschema and whether the target dictionary requires a valid SIGNON statement. The user must have authority to add, delete, and punch load modules to/from the target dictionary.

Password=dictionary-password

Optional based upon whether the SIGNONID requires a sign-on password for the target dictionary.

```
, TRANSSub= / \
              < transient-subschema-name >
              \ target-subschema-name /
```

Optional user-supplied name for the transient subschema used during CA-IDMS/TDB load processing. If not specified, it defaults to:

UVhhmmss

Where:

- UV is a system constant
- *hh* is the hour of job start
- *mm* is the minute of job start
- *ss* is the second of job start

The subschema name used by the Database Load Component is taken from this parameter regardless of whether or not a transient subschema is used. If a transient subschema is not used, specify the name of a subschema that the Database Load Component can successfully use.

SRCSub=source-subschema-name

Optional name of a subschema to be used by the Database Extract Component. Specifying a new source subschema allows the Database Extract Component to use a

subschema that was not accessible to the online Selection Criteria Specification component but is almost identical to the original subschema. The subschema you specify must contain the same record and sets as the original subschema. The user records and sets must be in the same physical sequence in both subschemas (that is, they must be copied in the same order). If these conditions are not met, unpredictable results can occur.

SRCDMcl=source-DMCL-name

Optional name of a DMCL to be used in conjunction with the SRCSUB subschema.

SRCDICTName=source-dictionary-node-name

Optional name of the dictionary in which the SRCSUB subschema resides if the subschema is in a load area other than the primary dictionary specified for the CV that the Database Extract Component is going to use.

TRANSDmcl=transient-DMCL-name

Optional name of a DMCL to use when the LOAD Component will run in LOCAL mode or when the DMCL named in TRANSSUB should not be used.

SRCDICTNde=source-dictionary-node-name

Optional name of a DDS node for the SRCSUB subschema. The name identifies the communication link between CVs and CPUs. Specifying this parameter indicates that CA-IDMS accesses a CV that exists in a CPU other than the one it is to be executing under to retrieve the specified SRCSUB subschema.

SRCDBName= / source-db \
< >
\ segment-name /

Optional name of a DB name or segment for the SRCSUB subschema. The DB name or segment maps the logical subschema view to a physical database.

SRCDBNde=source-database-node-name

Optional name of a DDS node for the SRCSUB subschema. Specifying this parameter indicates that the Database Extract Component executes in a DDS environment and accesses a CV in another CPU.

USERExit=user-exit-module-name

Optional name of the user exit load module to be invoked whenever a database record meets its record level selection criteria. See 5.12, “Writing a User Exit Module--CUVUSRXA” on page 5-55 for more information.

NOCompare

Optional parameter to indicate that the source and target subschemas are not to be compared. Use it if the target subschema is not accessible to the CV under which the Database Extract Component executes.

However, inconsistencies between the source and target subschemas can cause unpredictable results.

5.7 Performing the EXTRACT and LOAD Steps--USVEXEC

The sample JCL for the batch Database Extract and Database Load Components of CA-IDMS/DBX are contained in member Target or Distribution source library member USVEXEC (OS/390), TOOLJCL library member USVEXEC.S (VSE/ESA), or the USVEXEC EXEC (VM/ESA). This JCL is used after you create and save a Selection Criteria Specification using the online Selection Criteria Specification Component.

After supplying values for the variables, you can use this JCL as is, or it can be used as a model when you create and save a JCL member of the CA-IDMS/DBX database using the Edit JCL option on the Main Menu screen. You can then use the Submit option to submit the JCL for execution.

Be sure to review 5.5.5, "Allocating Space for DASD Files."

Also review the CA-IDMS/DBX Data Flow Information exhibit shown below.

Note: If you create this member using the Edit JCL Option, do not include the PROCESS parameter statement in the member. The appropriate PROCESS parameter statement is created and placed into the JCL for you prior to submitting the job by the Submit Option. Thus, a single JCL member can be used by more than one Selection Criteria Specification.

Note: If the database name DBNAME of the target database differs from that of the source database, then a SYSIDMS DBNAME parameter should be added to the JCL used in the Load step as follows:

```
//SYSIDMS DBNAME= target dbname
```

Also all areas included in the specified target subschema must be included in this DBNAME table.

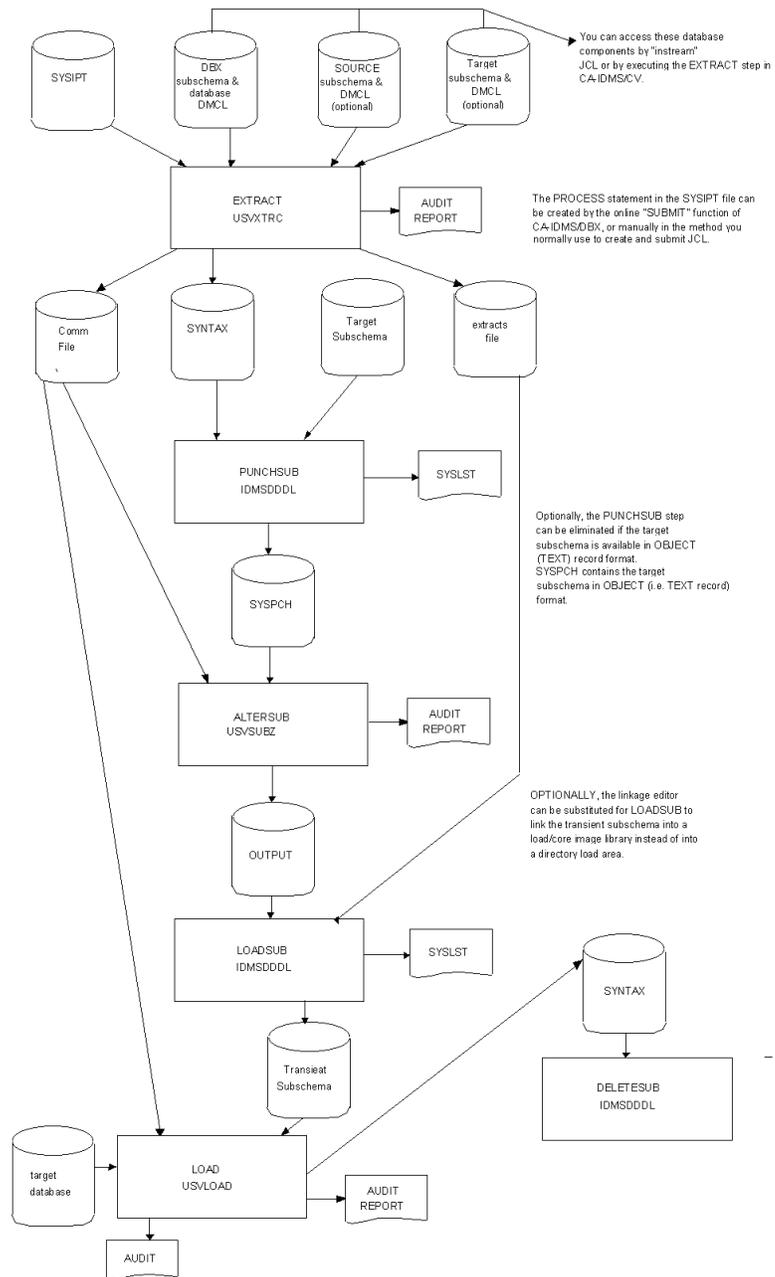


Exhibit 5.6: CA-IDMS/DBX Data Flow Information

5.7.1 Running in Local Mode Under OS/390

This JCL assumes you are going to be running under a CV. To run in local mode:

1. Remove the SYSCTL DD statements.
2. Add the appropriate DD statement(s) for your local journal(s).

3. Add the STEPLIB DD statements for your local DMCL and for your source and transient subschemas.
4. To the EXTRACT step, add DD statements for your:
 - a. CA-IDMS/DBX database
 - b. source database.
5. To the LOAD step, add DD statements for your target database.

If the source subschema exists in a CA-IDMS/DBX dictionary load area, the PUNCHSUB and ALTERSUB steps do not need to be changed. If the source subschema exists in a load library, it must be uploaded to a dictionary load area before the transient subschema process is executed. If the source subschema exists in object format, do not execute the PUNCHSUB step, and:

1. Change the INPUT of the ALTERSUB step to be the file of the object subschema.
2. Change the LOADSUB step to execute the linkage editor instead of IDMSDDDL. Supply appropriate JCL for a link edit. The SYSLIN data set should be the OUTPUT from the ALTERSUB step. The SYSLMOD member name should be the TRANSSUB (transient SSC name) specified when the JCL was submitted. Specify an execute parameter of LET and expect various IEW0302 error messages, as well as a condition code of 8.
3. For the LOAD step, change the COND parameter from 5,LT,LOADSUB to 9,LT,LOADSUB.
4. Change the DELETESUB step to execute IEHPROGM instead of IDMSDDDL. Change the COND parameter to remove the reference to the LOADSUB step. Supply a DD statement that references the SYSLMOD data set from the LOADSUB step. The SYSIN data set should be:

```
SCRATCH DSNAME=your.loadlib,VOL=SYSDA=valid,MEMBER=transsub
```

Sample OS/390 JCL for performing the EXTRACT and LOAD steps is shown below:

```
//USVEXEC JOB (job card parameters)
//*
//EXTRACT EXEC PGM=USVXTRC,REGION=1024K
//*
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
// DD DSN=your.idms.loadlib,DISP=SHR
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//EXTRACTS DD DSN=your.dbx.extract,DISP=(NEW,CATLG,DELETE),
// UNIT=disk,VOL=SER=volser,
// SPACE=(CYL,(primary,secondary))
//COMMFIL DD DSN=your.dbx.commfil,DISP=(NEW,CATLG,DELETE),
// UNIT=disk,VOL=SER=volser,SPACE=(TRK,1)
//SYNTAX DD DSN=your.dbx.syntax,DISP=(NEW,CATLG,DELETE),
// UNIT=disk,VOL=SER=volser,SPACE=(TRK,1)
//SYSPRINT DD SYSOUT=a
//SYSLSST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
//*
//SYSIPT DD *
PROCESS,USERID=userid,SPECNAME=selection-criteria-specification-name,
[SIGNONID=dictionary-userid,]
[PASSWORD=dictionary-password,]
[TRANSSUB=transient-or-target-subschema-name,]
[SRC SUB=source-subschema-name,]
[SRC DMCL=source-dmcl-name,]
[SRC DICTNAME=source-dictionary-name,]
[SRC DICTNODE=source-dictionary-node-name,]
[SRC DBNAME=source-db-or-segment-name,]
[SRC DBNODE=source-db-node-name,]
[USEREXIT=user-exit-module-name,]
[NOCOMPARE]
/*
//*
//PUNCHSUB EXEC PGM=IDMSDDL, REGION=1024K,
// COND=((5,LT,EXTRACT))
//*****
//*PUNCHSUB - Punch the target-subschema to a work-file based upon *
//* values from previous step. *
```

```

//*****
//STEPLIB DD DSN=your.idms.loadlib,DISP=SHR
//SYSLST DD SYSOUT=a
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//SYSPCH DD DSN=&&SUBPCH,DISP=(,PASS),UNIT=DISK,
//          SPACE=(TRK,(10,5)),DCB=(BLKSIZE=80,LRECL=80,RECFM=F)
//SYSIPT DD DSN=your.dbx.syntax,DISP=(OLD,DELETE,DELETE)
/*
//ALTERSUB EXEC PGM=USVSUBZ,REGION=1024K,PARM='NOSP/IE',
//          COND=((5,LT,EXTRACT),(5,LT,PUNCHSUB))
//*****
//*ALTERSUB - Alter the target subschema contents and create a      *
//*          transient working copy of the target-subschema.      *
//*****
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
//INPUT DD DSN=&&SUBPCH,DISP=(OLD,PASS)
//COMMFIL DD DSN=your.dbx.commfile,DISP=(OLD,KEEP)
//SYSLST DD SYSOUT=a
//CAIOUT DD SYSOUT=a
//SYSPRINT DD SYSOUT=a
//OUTPUT DD DSN=&&ALTSUB,DISP=(NEW,PASS),UNIT=DISK,
//          SPACE=(TRK,(10,5)),DCB=(BLKSIZE=80,LRECL=80,RECFM=F)
/*
//*
//*
//LOADSUB EXEC PGM=IDMSDDL,REGION=1024K,
//          COND=((5,LT,EXTRACT),(5,LT,PUNCHSUB),(0,NE,ALTERSUB))
//*****
//*LOADSUB - Add the transient-subschema to the target dictionary  *
//*          node using IDMSDDL.                                  *
//*****
//STEPLIB DD DSN=your.idms.loadlib,DISP=SHR
//SYSIPT DD DSN=&&ALTSUB,DISP=(OLD,PASS)
//SYSLST DD SYSOUT=a
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//SYSPCH DD DUMMY
/*
//*

```

```

//LOAD      EXEC PGM=USVLOAD,REGION=1536K,
//          COND=((5,LT,EXTRACT),(5,LT,PUNCHSUB),(0,NE,ALTERSUB),
//          (5,LT,LOADSUB))
//*
//* You can run the load against an existing database, although
//* unexpected problems may arise if an attempt is made to add duplicate
//* records to the database and the attempt is not prevented by the
//* DUPLICATES NOT ALLOWED option while doing this. Otherwise, run IDMSINIT
//* against the target database prior to executing this
//*
//* There is no parameter statement for this step. Processing is
//* controlled by information read from the EXTRACTS and COMMFILE
//* files.
//*
//*
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
//        DD DSN=your.idms.loadlib,DISP=SHR
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//EXTRACTS DD DSN=your.dbx.extract,DISP=SHR
//WORKFILE DD UNIT=disk,VOL=SER=volser,
//           SPACE=(CYL,(primary,secondary))
//SORTWK01 DD UNIT=disk,SPACE=(CYL,(primary,secondary))
//SORTWK02 DD UNIT=disk,SPACE=(CYL,(primary,secondary))
//SORTWK03 DD UNIT=disk,SPACE=(CYL,(primary,secondary))
//SORTMSG DD SYSOUT=a
//SYSPRINT DD SYSOUT=a
//SYSLST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
//COMMFILE DD DSN=your.dbx.commfile,DISP=SHR
//SYNTAX DD DSN=your.dbx.syntax,DISP=SHR
//*
//*
//DELTSUB EXEC PGM=IDMSDDL,REGION=1024K,
//          COND=((5,LT,EXTRACT),(5,LT,PUNCHSUB),(0,NE,ALTERSUB),
//          (5,LT,LOADSUB),EVEN)
//*
//*****
//*DELTSUB - Remove the transient-subschema from the target dictionary*
//*          node using IDMSDDL. *
//*****
//STEPLIB DD DSN=your.idms.loadlib,DISP=SHR
//SYSIPT DD DSN=your.dbx.syntax,DISP=(OLD,DELETE,DELETE)
//SYSLST DD SYSOUT=a
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//SYSPCH DD DUMMY
//

```

Exhibit 5.7: USVEXEC--Sample OS/390 JCL for Performing the EXTRACT and LOAD Steps

- **job card parameters** — The job card parameters at your site.
- **your.dbx.loadlib** — The name of the load library into which CA-IDMS/DBX load modules were link edited.
- **your.idms.loadlib** — The name of the load library into which CA-IDMS load modules were link edited.

- **your.idms.sysctl** — The data set name of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.
- **your.dbx.extract** — The name of the file to which all extracted records from your source database are written.
- **disk** — An appropriate UNIT designation for each file.
- **volser** — The volume serial number of the UNIT that contains the file being defined.
- **primary, secondary** — The primary/secondary space allocation for files that are being allocated to disk.
- **your.dbx.commfile** — The name of the file used by CA-IDMS/DBX for communication between the Database Extract and Database Load components.
- **your.dbx.syntax** — The name of the file used by CA-IDMS/DBX to create syntax for the various transient subschema steps.
- **a** — An appropriate SYSOUT class for your environment.
- **your.dmcl.name** — The name of your runtime system DMCL.

Exhibit 5.8: Key to Sample OS/390 JCL for Performing the EXTRACT and LOAD Steps

5.7.2 Running in Local Mode Under VSE/ESA

This JCL assumes you are going to be running under a CV. To run in local mode:

1. Supply the appropriate UPSI switch.
2. Add the appropriate JCL statement(s) for your local journal(s).
3. Add the correct SYSIDMS parameters for your local DMCL.
4. To the EXTRACT step, add JCL statements for your:
 - a. CA-IDMS/DBX database
 - b. source database.
5. If the target subschema exists in a CA-IDMS/DBX dictionary load area, the PUNCHSUB and ALTERSUB steps do not need to be changed. If the target subschema exists in a core image library, it must be uploaded to a dictionary load area before the transient subschema process is executed. If the target subschema exists in object format, do not execute the PUNCHSUB step, but change the INPUT of the ALTERSUB step to be the file of the object subschema.

Change the LOADSUB step to execute the linkage editor instead of IDMSDDDL. Supply appropriate JCL for a link edit. The linkage editor input data set should be the OUTPUT from the ALTERSUB step. The linkage editor core image phase name should be the TRANSSUB (transient SSC name) specified when the JCL was submitted. Specify a linkage editor parameter of LET and expect various error messages that result from the IDMSDDDL statements appended to the punched subschema object statements.

6. To the LOAD step, add JCL statements for your target database.
7. Change the DELETESUB step to execute LIBR instead of IDMSDDDL. Supply a statement that references the core image library from the LOADSUB step. The SYSIPT dataset should be: DELETE *transsub*.
8. Remove the DLBLs for the SYSCTL file.

Sample VSE/ESA JCL for EXTRACT and LOAD steps is shown below:

```

* SS JOB JNM=USVEXEC
* // JOB USVEXEC
*
// OPTION LOG,PARTDUMP
* **** CREATE A SYSIDMS PARAMETER FILE (15.0) ****
// UPSI 1
// DLBL     SYSIDMS,'work.file.SYSIDMS',0,SD
// EXTENT  SYS041,volserw,,,rel-trk-blk,1
// ASSGN   SYS041,DISK,VOL=volserw,SHR
// EXEC    DITTO
$$DITTO CSQ FILEOUT=SYSIDMS
*
* R15.0 SYSIDMS parameters for target dictionary
*
* /*
* /&
// UPSI    a
// ASSGN   SYS006,SYSLST
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL    tool,'tool.corelib'
// EXTENT  ,volserc
// DLBL    idms,'idms.corelib'
// EXTENT  ,volserc
// LIBDEF  PHASE,SEARCH=(tool.sublib,idms.sublib),TEMP
*
* *** DBX EXTRACT FILE
// DLBL    EXTRACT,'dbx.extract',99/365,SD
// EXTENT  SYS010,volserw,,,rel-trk-blk,amount
// ASSGN   SYS010,DISK,VOL=volserw,SHR
*
* *** DBX COMMUNICATION FILE
// DLBL    COMMFIL,'dbx.commfile',99/365,SD
// EXTENT  SYS015,volserw,,,rel-trk-blk,amount
// ASSGN   SYS015,DISK,VOL=volserw,SHR
*
* *** IDD SYNTAX FILE
// DLBL    SYNTAX,'dbx.syntax',99/365,SD
// EXTENT  SYS016,volserw,,,rel-trk-blk,amount
// ASSGN   SYS016,DISK,VOL=volserw,SHR
*
* *** INPUT
// ASSGN   SYSIPT,SYSRDR
* SYCTL FILE
*
// DLBL    SYCTL,'your.sysctl.file',,SD
// EXTENT  SYS000,volser,,,rel-trk-blk,1
// ASSGN   SYS000,DISK,VOL=volser,SHR
// DLBL    SYSIDMS,'#SYSIPT',0,SD
// EXEC    USVXTRC,SIZE=(USVXTRC,400K)
*
* R15.0 SYSIDMS parameters
/*

```

```

PROCESS,USERID=userid,SPECNAME=selection-criteria-specification-name,
SIGNONID=dictionary-userid,
PASSWORD=dictionary-password,
TRANSSUB=transient-subschema-name,
TRANSDMCL=transient-dmcl-name
/*
* PUNCHSUB step. Punch the target subschema from the dictionary
*
// DLBL IJSYSPH,'dbx.syspch',99/365,SD
// EXTENT SYSPCH,volserw,,rel-trk-blk,amount
// ASSGN SYSPCH,DISK,VOL=volserw,SHR
// DLBL IJSYSIN,'dbx.syntax',0,SD
// EXTENT SYSIPT,volserw,,rel-trk-blk,amount
// ASSGN SYSIPT,DISK,VOL=volserw,SHR
// DLBL SYSIDMS,'work.file.SYSIDMS'
// EXTENT SYS041,volserw
// ASSGN SYS041,DISK,VOL=volserw,SHR
// DLBL SYSCTL,'your.sysctl.file',,SD
// EXTENT SYS000,volser,,rel-trk-blk,1
// ASSGN SYS000,DISK,VOL=volser,SHR
// EXEC IDMSDDDL,SIZE=512K
// CLOSE SYSIPT,YSRDR
// CLOSE SYSPCH,xxx
*
* ALTERSUB step. Alter the target subschema and create a transient
* working copy of the target subschema.
*
// DLBL INPUT,'dbx.syspch',0,SD
// EXTENT SYS017,volserw,,rel-trk-blk,amount
// ASSGN SYS017,DISK,VOL=volserw,SHR
// DLBL OUTPUT,'dbx.transsub',99/365,SD
// EXTENT SYS018,volserw,,rel-trk-blk,amount
// ASSGN SYS018,DISK,VOL=volserw,SHR
// DLBL COMMFIL,'dbx.commfile',0,SD
// EXTENT SYS015,volserw,,rel-trk-blk,amount
// ASSGN SYS015,DISK,VOL=volserw,SHR
// DLBL SYSCTL,'your.sysctl.file',,SD
// EXTENT SYS000,volser,,rel-trk-blk,1
// ASSGN SYS000,DISK,VOL=volser,SHR
// ASSGN SYS012,SYSLST
// EXEC USVSUBZ,SIZE=AUTO
/*
*
* LOADSUB step. Add the transient subschema to the target dictionary
*
// DLBL IJSYSIN,'dbx.transsub',0,SD
// EXTENT SYSIPT,volserw,,rel-trk-blk,amount
// ASSGN SYSIPT,DISK,VOL=volserw,SHR
// ASSGN SYSPCH,IGN
// DLBL SYSCTL,'your.sysctl.file',,SD
// EXTENT SYS000,volser,,rel-trk-blk,1
// ASSGN SYS000,DISK,VOL=volser,SHR
// DLBL SYSIDMS,'work.file.SYSIDMS'

```

```

// EXTENT  SYS041,volserw
// ASSGN   SYS041,DISK,VOL=volserw,SHR
// EXEC    IDMSDDDL,SIZE=512K
//        CLOSE  SYSIPT,YSRDR
/*
* LOAD step.  Add the extracted records to the target database
*
// DLBL    EXTRACT,'dbx.extract',0,SD
// EXTENT  SYS010,volserw,,,rel-trk-blk,amount
// ASSGN   SYS010,DISK,VOL=volserw,SHR
// DLBL    WORKFIL,'dbx.workfile',99/365,SD
// EXTENT  SYS011,volserw,,,rel-trk-blk,amount
// ASSGN   SYS011,DISK,VOL=volserw,SHR
// DLBL    COMMFIL,'dbx.commfile',0,SD
// EXTENT  SYS015,volserw,,,rel-trk-blk,amount
// ASSGN   SYS015,DISK,VOL=volserw,SHR
// DLBL    SYNTAX,'dbx.syntax',0,SD
// EXTENT  SYS016,volserw,,,rel-trk-blk,amount
// ASSGN   SYS016,DISK,VOL=volserw,SHR
// DLBL    SORTWK1,'SORT.WORK1',0,SD
// EXTENT  SYS001
// ASSGN   SYS001,DISK,VOL=volserw,SHR
// DLBL    SORTWK2,'SORT.WORK2',0,SD
// EXTENT  SYS002
// ASSGN   SYS002,DISK,VOL=volserw,SHR
// DLBL    SORTWK3,'SORT.WORK3',0,SD
// EXTENT  SYS003
// ASSGN   SYS003,DISK,VOL=volserw,SHR
// DLBL    SORTWK4,'SORT.WORK4',0,SD
// EXTENT  SYS004
// ASSGN   SYS004,DISK,VOL=volserw,SHR
// ASSGN   SYS006,SYSLST
// DLBL    SYCTL,'your.sysctl.file',,SD
// EXTENT  SYS000,volser,,,rel-trk-blk,1
// ASSGN   SYS000,DISK,VOL=volser,SHR
// DLBL    SYSIDMS,'#SYSIPT',0,SD
// EXEC    USVLOAD,SIZE=(AUTO,400K)
*
* R15.0 SYSIDMS parameters
/*
* DELETESUB step.  Delete the transient subschema from the dictionary
*
// ASSGN   SYSPCH,IGN
// DLBL    IJSYSIN,'dbx.syntax',0,SD
// EXTENT  SYSIPT,volser,,,rel-trk-blk,amount
//        ASSGN  SYSIPT,DISK,VOL=volserw,SHR
// DLBL    SYCTL,'your.sysctl.file',,SD
// EXTENT  SYS000,volser,,,rel-trk-blk,1
// ASSGN   SYS000,DISK,VOL=volser,SHR
// DLBL    SYSIDMS,'work.file.SYSIDMS'
// EXTENT  SYS041,volserw
// ASSGN   SYS041,DISK,VOL=volserw,SHR

```

```
// EXEC  IDMSDDDL,SIZE=512K
      CLOSE SYSIPT,YSRDR
/*
//*
* /&
* SS E0J
```

Exhibit 5.9: S.USVEXEC/USVEXEC.S--Sample VSE/ESA JCL for EXTRACT and LOAD Steps

- **a** — The UPSI switch to invoke CA-IDMS CV as specified in your IDMSOPTI module.
- **tool** — The file name of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **tool.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **volser_** — The volume serial number or generic assignment of the volume on which the file, as specified in the previous statement, resides. The following letters identify the file in question: c=core image library, w=work file, r=relocatable library, s=source statement library.
- **idms** — The file name of the core image library into which the executable phases of CA-IDMS were installed.
- **idms.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS were installed.
- **.sublib** — The sublibrary name of the VSE/ESA library specified in the previous file name.
- **dbx.extract** — The file ID of the file to which the CA-IDMS/DBX extract records are written.
- **rel-trk-blk** — Relative track or relative block number: The starting position of the DASD for storage of the file specified in the previous statement.
- **amount** — The number of tracks or blocks you need for storage of the work file specified in the previous statement.
- **dbx.commfile** — The file ID of the file to which the CA-IDMS/DBX communication records are written.
- **dbx.syntax** — The file ID of the file to which the IDD syntax records are written.
- **dbx.sypch** — The file ID of the file to which the CA-IDMS subschema object records are written.
- **xxx** — The physical device or logical unit to which the SYSPCH logical unit is to be assigned.
- **your.sysctl.file** — The file ID of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.

- **dbx.transsub** — The file ID of the file to which the transient subschema is written.

Exhibit 5.10: Key to Sample VSE/ESA JCL for EXTRACT and LOAD Steps

5.7.3 Running in Local Mode Under VM/ESA

This JCL assumes you are going to be running under a CV. To run in local mode:

1. Add the appropriate FILEDEFs for your local journal(s).
2. Add the FILEDEF for the LOADLIB containing your local DMCL and for your source and transient subschemas.
3. Add the above loadlib to the GLOBAL LOADLIB statement.
4. To the EXTRACT step, add FILEDEFs for:
 - a. your CA-IDMS/DBX database
 - b. your source database.
5. To the LOAD step, add FILEDEFs for your target database.
6. Remove or comment out the SYSCTL FILEDEF statement.
7. Alter the parameters in your SYSIDMS INPUT file accordingly.

If the target subschema exists in a CA-IDMS dictionary load area, the PUNCHSUB and ALTERSUB steps do not need to be changed. If the target subschema exists in a load library, it must be uploaded to a dictionary load area before the transient subschema process is executed.

If the target subschema exists in object format, do not execute the PUNCHSUB step, and:

1. Change the INPUT of the ALTERSUB step to be the file of the object subschema.
2. Change the LOADSUB step to execute the linkage editor instead of IDMSDDDL. (Supply appropriate JCL for a link edit.) The SYSLIN dataset should be the OUTPUT from the ALTERSUB step. The SYSLMOD member name should be the TRANSSUB (transient SSC name) specified when the EXEC was submitted. Specify an execute parameter of LET and expect various IEW0302 error messages, as well as a condition code of 8.
3. For the LOAD step, change the return code check from 5 to 9.
4. Change the DELETESUB step to execute a LOADLIB DELETE command for the transsub member name.

Sample VM/ESA EXEC for EXTRACT and LOAD steps is shown below:

```

/* */
TRACE OFF; SIGNAL ON ERROR
/*
----- EXEC MODIFICATIONS ----- 'USVEXEC' SAMPLE EXEC -----
*/
DBX_LOADLIB_FN      = 'dbxlib'
DBX_LOADLIB_FT      = 'LOADLIB'
DBX_LOADLIB_FM      = '*'
/* */
IDMS_LOADLIB_FN     = 'idmslib'
IDMS_LOADLIB_FT     = 'LOADLIB'
IDMS_LOADLIB_FM     = '*'
/* */
SORT_SORTLIB_FN     = 'sortlib'
SORT_SORTLIB_FT     = 'TXTLIB'
SORT_SORTLIB_FM     = '*'
/* */
USVXTRC_SYSIPT_FN   = 'USVXTRC'
USVXTRC_SYSIPT_FT   = 'SYSIPT'
USVXTRC_SYSIPT_FM   = 'a'
/* */
MAX_RC = 0
/* */
/* */
CALL CREATE_USVXTRC_SYSIPT_FILE
/* */
CALL EXECUTE_USVXTRC
IF USVXTRC_RC > 4
    THEN CALL USVXTRC_ERROR
END
IF USVXTRC_RC > MAX_RC
    THEN MAX_RC = USVXTRC_RC
END
/* */
CALL EXECUTE_PUNCHSUB
IF USVXTRC_RC > 4
    THEN CALL PUNCHSUB_ERROR
END

```

```
IF USVXTRC_RC > MAX_RC
  THEN MAX_RC = USVXTRC_RC
END
/* */
CALL EXECUTE_ALTERSUB
IF USVXTRC_RC > 0
  THEN CALL ALTERSUB_ERROR
END
IF USVXTRC_RC > MAX_RC
  THEN MAX_RC = USVXTRC_RC
END
/* */
CALL EXECUTE_LOADSUB
IF USVXTRC_RC > 4
  THEN CALL LOADSUB_ERROR
END
IF USVXTRC_RC > MAX_RC
  THEN MAX_RC = USVXTRC_RC
END
/* */
CALL EXECUTE_USVLOAD
IF USVLOAD_RC > 4
  THEN CALL USVLOAD_ERROR
END
IF USVXTRC_RC > MAX_RC
  THEN MAX_RC = USVXTRC_RC
END
/* */
IF LOADSUB_RC = 0
  THEN CALL EXECUTE_DELTSUB
  IF USVXTRC_RC > 5
    THEN CALL DELTSUB_ERROR
END
IF USVXTRC_RC > MAX_RC
  THEN MAX_RC = USVXTRC_RC
END
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT MAX_RC
/* */
```

```

/***** */
CREATE_USVXTRC_SYSIPT_FILE:
/***** */
  SIGNAL OFF ERROR
  'ERASE' USVXTRC_SYSIPT_FN USVXTRC_SYSIPT_FT USVXTRC_SYSIPT_FM
  SIGNAL ON ERROR
  /* */
  PUSH 'FFILE'
  PUSH
  PUSH ' NOCOMPARE'
  PUSH ' USEREXIT=user-exit-module-name,'
  PUSH ' SRCDBNODE=source-db-node-name,'
  PUSH ' SRCDBNAME=source-db-or-segment-name,'
  PUSH ' SRCDICTNODE=source-dictionary-node-name,'
  PUSH ' SRCDICTNAME=source-dictionary-name,'
  PUSH ' SRCDMCL=source-dmcl-name,'
  PUSH ' SRCSUB=source-subschema-name,'
  PUSH ' TRANSSUB=transient-or-target-subschema-name,'
  PUSH ' PASSWORD=dictionary-password,'
  PUSH ' SIGNONID=dictionary-userid,'
  PUSH ' SPECNAME=selection-criteria-specification-name,'
/* PUSH ' UNLOAD,SRCSUB=source-subschema-name,' */
  PUSH ' USERID=userid,'
  PUSH ' PROCESS,'
  PUSH 'INPUT'
  PUSH 'SET LRECL 80'
  PUSH 'SET RECFM F'
  'XEDIT' USVXTRC_SYSIPT_FN USVXTRC_SYSIPT_FT USVXTRC_SYSIPT_FM ,
  '(NOPROFILE NOSCREEN NOMSG'
  RETURN
  /* */
/***** */
EXECUTE_USVXTRC:
/***** */
'FILEDEF * CLEAR'
'GLOBAL LOADLIB' DBX_LOADLIB_FN IDMS_LOADLIB_FN
'FILEDEF EXTRACTS DISK FILE EXTRACTS a'
'FILEDEF COMMFILE DISK FILE COMMFILE a'
'FILEDEF SYNTAX DISK FILE SYNTAX a'
'FILEDEF SYSIDMS DISK SYSIDMS INPUT a'
'FILEDEF SYSCTL DISK fn SYSCTL fm'
'FILEDEF SYSIPT DISK' USVXTRC_SYSIPT_FN USVXTRC_SYSIPT_FT USVXTRC_SYSIPT_FM

```

```

'FILEDEF SYSLST  PRINTER'
'FILEDEF SYSPRINT PRINTER'
SIGNAL OFF ERROR
SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR EXTRACT'
'EXECOS'
'OSRUN USVXTRC'
USVXTRC_RC = RC
SIGNAL ON ERROR
RETURN
/* */
/***** */
EXECUTE_PUNCHSUB:
/***** */
/***** */
/*PUNCHSUB - Punch the target-subschema to a work-file based upon  */
/*          values from previous step.                               */
/***** */
/* */
'FILEDEF * CLEAR'
'GLOBAL LOADLIB' IDMS_LOADLIB_FN
'FILEDEF SYSPCH  DISK  FILE DDDLUPD  a'
'FILEDEF SYSIPT  DISK  FILE SYNTAX  a'
'FILEDEF SYSIDMS DISK  SYSIDMS INPUT a'
'FILEDEF SYSCTL  DISK  fn SYSCTL fm'
'FILEDEF SYSLST  PRINTER'
/* */
SIGNAL OFF ERROR
SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR PUNCH SUBSCHEMA'
'EXECOS'
'OSRUN IDMSDDL PARM='CVMACH=machine-id''
USVXTRC_RC = RC
SIGNAL ON ERROR
RETURN
/* */
/***** */
EXECUTE_ALTERSUB:
/***** */
/* */

```

```

/*****
/*ALTERSUB - Alter the target subschema contents and create a      */
/*      transient working copy of the target-subschema.          */
/*****
/* */
'FILEDEF * CLEAR'
'GLOBAL LOADLIB' DBX_LOADLIB_FN IDMS_LOADLIB_FN
'FILEDEF INPUT  DISK   FILE DDDLUPD a'
'FILEDEF COMMFILE DISK   FILE COMMFILE a'
'FILEDEF OUTPUT  DISK   FILE ALTSUB  a'
'FILEDEF SYSLST  PRINTER'
'FILEDEF CAIOUT  PRINTER'
/* */
SIGNAL OFF ERROR
SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR ALTER SUBSCHEMA'
'EXECOS'
'OSRUN USVSUBZ'
USVXTRC_RC = RC
SIGNAL ON ERROR
RETURN
/* */
/***** */
EXECUTE_LOADSUB:
/***** */
/*****
/*LOADSUB - Add the transient-subschema to the target dictionary  */
/*      node using IDMSDDL.                                       */
/*****
/* */
'FILEDEF * CLEAR'
'GLOBAL LOADLIB' IDMS_LOADLIB_FN
'FILEDEF SYSPCH  DUMMY'
'FILEDEF SYSLST  PRINTER'
'FILEDEF SYSIPT  DISK   FILE ALTSUB  a'
'FILEDEF SYSIDMS DISK   SYSIDMS INPUT a'
'FILEDEF SYSCTL  DISK   fn SYSCTL fm'
/* */

```

```

    SIGNAL OFF ERROR
    SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR RELOAD SUBSCHEMA'
    'EXECOS'
    'OSRUN IDMSDDL PARM=' 'CVMACH=machine-id''
    LOADSUB_RC = RC
    SIGNAL ON ERROR
    RETURN
/* */
/***** */
EXECUTE_USVLOAD:
/***** */
    'FILEDEF * CLEAR'
    'GLOBAL LOADLIB' DBX_LOADLIB_FN IDMS_LOADLIB_FN
    'GLOBAL TXTLIB' SORT_SORTLIB_FN
    'FILEDEF EXTRACTS DISK FILE EXTRACTS a'
    'FILEDEF WORKFILE DISK FILE WORKFILE a'
    'FILEDEF COMMFILE DISK FILE COMMFILE a'
    'FILEDEF SYNTAX DISK FILE SYNTAX a'
    'FILEDEF SYSIDMS DISK SYSIDMS INPUT a'
    'FILEDEF SYSCTL DISK fn SYSCTL fm'
    'FILEDEF SYSLST PRINTER'
    'FILEDEF SYSPRINT PRINTER'
    'FILEDEF SORTMSG PRINTER'
    SIGNAL OFF ERROR
    SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR LOAD DATABASE'
    'EXECOS'
    'OSRUN USVLOAD PARM=' 'MSGOPT=A''
    USVXTRC_RC = RC
    SIGNAL ON ERROR
    RETURN
/* */
/***** */
EXECUTE_DELSUB:
/***** */
/* */
/***** */
/*DELSUB - Remove the transient-subschema from the target dictionary**/
/* node using IDMSDDL. */
/***** */
/* */

```

```

'FILEDEF * CLEAR'
'GLOBAL LOADLIB' IDMS_LOADLIB_FN
'FILEDEF SYSPCH DUMMY'
'FILEDEF SYSLST PRINTER'
'FILEDEF SYSIPT DISK FILE SYNTAX a'
'FILEDEF SYSIDMS DISK SYSIDMS INPUT a'
'FILEDEF SYSCTL DISK fn SYSCTL fm'
/* */
SIGNAL OFF ERROR
SAY 'STARTING CA-IDMS/DATABASE EXTRACTOR DELETE SUBSCHEMA'
'EXECOS'
'OSRUN IDMSDDL PARM='CVMACH=machine-id''
USVXTRC_RC = RC
SIGNAL ON ERROR
RETURN
/* */
/***** */
USVXTRC_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'UNACCEPTABLE USVXTRC RETURN CODE' USVXTRC_RC
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */
/***** */
PUNCHSUB_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'UNACCEPTABLE PUNCHSUB RETURN CODE' USVXTRC_RC
/* */

```

```

'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */
/***** */
ALTERSUB_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'UNACCEPTABLE ALTERSUB RETURN CODE' USVXTRC_RC
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */
/***** */
LOADSUB_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'UNACCEPTABLE LOADSUB RETURN CODE' USVXTRC_RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */

```

```

/***** */
USVLOAD_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
SAY 'UNACCEPTABLE USVLOAD RETURN CODE' USVXTRC_RC
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */
/***** */
DELTSUB_ERROR:
/***** */
TRACE OFF; SIGNAL OFF ERROR
SAY 'UNACCEPTABLE DELTSUB RETURN CODE' USVXTRC_RC
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT USVXTRC_RC
/* */
/***** */
ERROR:
/***** */
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/* */

'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVEXEC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'GLOBAL sortlib'
'FILEDEF * CLEAR'
/* */
EXIT ERROR_RC

```

Exhibit 5.11: USVEXEC--Sample VM/ESA EXEC for EXTRACT and LOAD Steps

- **dbxlib** — The file name of the load library into which you downloaded CA-IDMS/DATABASE EXTRACTOR.
- **idmslib** — The file name of the load library which contains your CA-IDMS load modules.
- **sortlib** — The file name of the text library which contains your Sort text files.

- **fn SYSCTL fm** — The file name, file type, and file mode of the SYSCTL file used by the Central Version (CV) during batch processing.
- **a** — The file mode for each relevant file. If necessary, change the file name and file type to conform to your site's standards.

Exhibit 5.12: Key to USVEXEC -- Sample VM/ESA EXEC for EXEC and LOAD Steps

5.8 Printing JCL--USVPJCL

The sample JCL contained in Target or Distribution source library member USVPJCL (OS/390), TOOLJCL library member USVPJCL.S (VSE/ESA), or the USVPJCL EXEC (VM/ESA) is used by the Print Utility or the Online JCL Utilities Component after JCL has been uploaded, or edited and saved using the online JCL Component.

The JCL and keys for USVPJCL are shown below.

5.8.1 Running in Local Mode

To run in local mode under OS/390 and VSE/ESA, remove the SYSCTL DD statement and add appropriate DD statements for your CA-IDMS/DBX database and your local journal. To run in local mode under VM/ESA, remove the SYSCTL FILEDEF statement and add appropriate FILEDEF statements for your CA-IDMS/DBX database and your local journals.

```
//USVPJCL JOB (job card parameters)
//*
//PRTJCL EXEC PGM=USVPJCL,REGION=1024K
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
// DD DSN=your.idms.loadlib,DISP=SHR
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//SYSLST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
//*
//*
//SYSIPT DD *
PROCESS,USERID=userid,JCLMBR=jcl-member-name
```

Exhibit 5.13: USVPJCL--Sample OS/390 JCL for Printing JCL

- **job card parameters** — The job card parameters at your site.
- **your.dbx.loadlib** — The name of the load library into which CA-IDMS/DBX load modules were link edited.
- **your.idms.loadlib** — The name of the load library into which CA-IDMS load modules were link edited.
- **your.idms.sysctl** — The data set name of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.
- **a** — An appropriate SYSOUT class for your environment.
- **PROCESS** — Must be coded as is. Indicates that PROCESS keywords follow.
- **userid** — Required keyword used as primary key for selection of a CA-IDMS/DBX JCL member. This keyword is the user ID or Iterm ID under which the member was saved.
- **jcl-member-name** — Required keyword, used as secondary key for selection of a CA-IDMS/DBX JCL member.

Exhibit 5.14: Key to USVPJCL--Sample OS/390 JCL for Printing JCL

```

* SS JOB JNM=USVPJCL
* // JOB USVPJCL
*
// OPTION LOG,PARTDUMP
// UPSI a
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL tool,'tool.corelib'
// EXTENT ,volserc
// DLBL idms,'idms.corelib'
// EXTENT ,volserc
// LIBDEF *,SEARCH=(tool.sublib,idms.sublib),TEMP
*
* *** INPUT - SYNTAX
// ASSGN SYSIPT,SYSRDR
*
* *** OUTPUT - PRINT REPORT FILE
// ASSGN SYS006,SYSLST
*
// DLBL SYSCTL,'your.sysctl.file',,sd
// EXTENT SYS000,volser
// ASSGN SYS000,DISK,VOL=volser,shr
*
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC USVPJCL,SIZE=(USVPJCL,400K)
PROCESS,USERID=userid,JCLMBR=jcl-member-name
* /*
* R15.0 SYSIDMS parameters
* /*
* /*
* /*
* SS E0J

```

Exhibit 5.15: S.USVPJCL/USVPJCL.S--Sample VSE/ESA JCL for Printing JCL

- **a** — The UPSI switch to invoke CA-IDMS CV as specified in your IDMSOPTI module.
- **tool** — The file name of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **tool.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **volser_** — The volume serial number or generic assignment of the volume on which the file, as specified in the previous statement, resides. The following letters identify the file in question: c=core image library, w=work file, r=relocatable library, s=source statement library.
- **idms** — The file name of the core image library into which the executable phases of CA-IDMS were installed.
- **idms.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS were installed.

- **.sublib** — The sublibrary name of the VSE/ESA library specified in the previous file name.
- **your.sysctl.file** — The file ID of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.

Exhibit 5.16: Key to Sample VSE/ESA JCL for Printing JCL

```

/* */
TRACE OFF; SIGNAL ON ERROR
/*
DBX_LOADLIB_FN      = 'dbxlib'
IDMS_LOADLIB_FN     = 'idmslib'
/*
    Link and access the Minidisks containing the required libraries
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
'GLOBAL LOADLIB ' DBX_LOADLIB_FN IDMS_LOADLIB_FN
/*
    Create the input parameter file.
CALL CREATE_INPUT_PARM_FILE
/*
    Product specific files.
'FILEDEF SYSLST  PRINTER'
'FILEDEF SYSUDUMP PRINTER'
'FILEDEF SYSIPT  DISK USVPJCL SYSIPT A'
/*
    You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS
    parameters you use to specify your runtime environment.
'FILEDEF SYSIDMS  DISK SYSIDMS INPUT A'
'FILEDEF SYSCTL  DISK fn SYSCTL fm'
/*
SIGNAL OFF ERROR
SAY 'STARTING PRINT OF CA-IDMS/DATABASE EXTRACTOR JCL'
'EXECOS OSRUN USVPJCL'
USVPJCL_RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVPJCL LISTING'
'CP SPOOL PRINTER OFF'
SAY 'USVPJCL FINISHED WITH A RETURN CODE OF' USVPJCL_RC
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT USVPJCL_RC
/* */
/***** */
CREATE_INPUT_PARM_FILE:
/***** */
SIGNAL OFF ERROR
'ERASE USVPJCL SYSIPT A'
SIGNAL ON ERROR
/* */
PUSH 'FFILE'
PUSH
PUSH ' JCLMBR=jcl.member.name'
PUSH ' USERID=userid,'
PUSH ' PROCESS,'
PUSH 'INPUT'
PUSH 'SET LRECL 80'
PUSH 'SET RECFM F'
'XEDIT USVPJCL SYSIPT A' ,

```

```

      '(NOPROFILE NOSCREEN NOMSG'
RETURN
/* */
/***** */
ERROR:
/***** */
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/* */
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/* */
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVPJCL LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/* */

```

Exhibit 5.17: USVPJCL--Sample VM/ESA EXEC for Printing JCL

- **dbxlib** — The file name of the load library into which you downloaded CA-IDMS/DATABASE EXTRACTOR.
- **idmslib** — The file name of the load library which contains your CA-IDMS load modules.
- **fn SYSCTL fm** — The file name, file type, and file mode of the SYSCTL file used by the Central Version (CV) during batch processing.
- **PROCESS** — Must be coded as is. Indicates that PROCESS keywords follow.
- **userid** — Required keyword used as primary key for selection of a CA-IDMS/DBX JCL member. This keyword is the user ID or lterm ID under which the member was saved.
- **jcl-member-name** — Required keyword, used as secondary key for selection of a CA-IDMS/DBX JCL member.

Exhibit 5.18: Key to USVPJCL--Sample VM/ESA EXEC for Printing JCL

5.9 Printing a Selection Criteria Specification--USVPSPC

The sample JCL contained in Target or Distribution source library member USVPSPC (OS/390), TOOLJCL library member USVPSPC (VSE/ESA), or the USVPSPC EXEC (VM/ESA) is used by the batch Specification Print Utility or the online Specification Utilities Component after a Selection Criteria Specification has been created and saved using the online Selection Criteria Specification Component. The JCL and keys for USVPSPC are shown below.

5.9.1 Running in Local Mode

To run in local mode under OS/390 and VSE/ESA, remove the SYSCTL DD statement and add appropriate DD statements for your CA-IDMS/DBX database and your local journal. To run in local mode under VM/ESA, remove the SYSCTL FILEDEF statement and add appropriate FILEDEF statements for your CA-IDMS/DBX database and your local journals.

```
//USVPSPC JOB (job card parameters)
//*
//PRTSPEC EXEC PGM=USVPSPC,REGION=1024K
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
// DD DSN=your.idms.loadlib,DISP=SHR
//SYSCTL DD DSN=your.idms.sysctl,DISP=SHR
//SYSLST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
//*
//SYSIPT DD
PROCESS,USERID=userid,SPECNAME=selection-criteria-specification-name
```

Exhibit 5.19: USVPSPC--Sample OS/390 JCL for Printing a Selection Criteria Specification

- **job card parameters** — The job card parameters at your site.
- **your.dbx.loadlib** — The name of the load library into which CA-IDMS/DBX load modules were link edited.
- **your.idms.loadlib** — The name of the load library into which CA-IDMS load modules were link edited.
- **your.idms.sysctl** — The data set name of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.
- **a** — An appropriate SYSOUT class for your environment.
- **PROCESS** — Must be coded as is. Indicates that PROCESS keywords follow.
- **userid** — Required keyword used as primary key for selection of a specification. This is the user ID or lterm ID under which the specification was saved.
- **selection-criteria-specification-name** — Required keyword, used as secondary key for selection of a specification.

Exhibit 5.20: Key to Sample OS/390 JCL for Printing a Selection Criteria Specification

```

* SS JOB JNM=USVPSPC
* // JOB USVPSPC
*
// OPTION LOG,PARTDUMP
// UPSI 1
*      **** CREATE A SYSIDMS PARAMETER FILE (15.0) ****
// UPSI 1
// DLBL      anyname,'work.file.SYSIDMS',0,SD
// EXTENT    SYSnnn,volser,,start-track,1
// ASSGN     SYSnnn,DISK,VOL=volser,SHR
// EXEC      DITTO
$$DITTO CSQ FILEOUT=ANYNAME
      ECHO=ON
      JOURNAL=OFF
      LOCAL=ON-OR-OFF
      DMCL=DMCLNAME
      DICTNAME=DICTNAME
      DBN=DBX
* /*
* /*
// UPSI      a
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL      dbms,'dbx.corelib'
// EXTENT    ,volserc
// DLBL      idms,'idms.corelib'
// EXTENT    ,volserc
// LIBDEF    *,SEARCH=(dbms.sublib,idms.sublib),TEMP
*
* *** INPUT - SYNTAX
// ASSGN     SYSIPT,SYSRDR
*
* *** OUTPUT - PRINT REPORT FILE
// ASSGN     SYS006,SYSLST
*
// DLBL      SYSCTL,'your.sysctl.file',,sd
// EXTENT    SYS000,volser,,start-track,1
// ASSGN     SYS000,DISK,VOL=volser,SHR
*
// DLBL      SYSIDMS,'work.file.SYSIDMS',0,SD
// EXTENT    SYSnnn,volser
// ASSGN     SYSnnn,DISK,VOL=volser,SHR
*
// EXEC      USVPSPC,SIZE=(USVPSPC,400K)
            PROCESS,USERID=userid,SPECNAME=selection-criteria-specification-name
* /*
* /&
* SS E0J

```

Exhibit 5.21: S.USVPSPC/USVPSPC.S — VSE/ESA JCL for Printing Selection Criteria Specification

- **a** — The UPSI switch to invoke CA-IDMS CV as specified in your IDMSOPTI module.

- **anyname** — Any suitable name for your SYSIDMS file. The name you have chosen must be identical to the FILEOUT value in the DITTO step.
- **SYSnnn** — An appropriate SYS number for your SYSIDMS file.
- **volser_** — The volume serial number or generic assignment of the volume on which the file, as specified in the previous statement, resides. The following letters identify the file in question: c=core image library, w=work file, r=relocatable library, s=source statement library.
- **start-track** — The starting track number for the specified file.
- **dbms** — The file name of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **dbx.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **idms** — The file name of the core image library into which the executable phases of CA-IDMS were installed.
- **idms.corelib** — The file ID of the core image library into which the executable phases of CA-IDMS were installed.
- **.sublib** — The sublibrary name of the VSE/ESA library specified in the previous file name.
- **your.sysctl.file** — The file ID of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.

Exhibit 5.22: Key to Sample VSE/ESA JCL for Printing a Selection Criteria Specification

```

/* */
TRACE OFF; SIGNAL ON ERROR
/*
DBX_LOADLIB_FN      = 'dbxlib'
IDMS_LOADLIB_FN    = 'idmslib'
/*
    Link and access the Minidisks containing the required librariе(s)
*/
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
'GLOBAL LOADLIB ' DBX_LOADLIB_FN IDMS_LOADLIB_FN
/*
    Create the input parameter file.
*/
CALL CREATE_INPUT_PARM_FILE
/*
    Product specific files.
*/
'FILEDEF SYSIPT   DISK USVPSPC SYSIPT A'
'FILEDEF SYSLST   PRINTER'
'FILEDEF SYSUDUMP PRINTER'
/*
    You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS
    parameters you use to specify your runtime environment.
*/
'FILEDEF SYSIDMS  DISK SYSIDMS INPUT A'
'FILEDEF SYSCTL   DISK fn SYSCTL fm'
/* */
SIGNAL OFF ERROR
SAY 'STARTING PRINT OF CA-IDMS/DATABASE EXTRACTOR SPECIFICATION'
'EXECOS OSRUN USVPSPC'
USVPSPC_RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVPSPC LISTING'
'CP SPOOL PRINTER OFF'
SAY 'USVPSPC FINISHED WITH A RETURN CODE OF' USVPSPC_RC
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT USVPSPC_RC
/* */
/* ++++++ *
CREATE_INPUT_PARM_FILE:
/* ++++++ *
SIGNAL OFF ERROR
'ERASE USVPSPC SYSIPT A'
SIGNAL ON ERROR
/* */
PUSH 'FFILE'
PUSH
PUSH ' SPECNAME=specification-name'
PUSH ' USERID=userid,'
PUSH ' PROCESS,'
PUSH 'INPUT'

```

```

PUSH 'SET LRECL 80'
PUSH 'SET RECFM F'
'XEDIT USVPSPC SYSIPT A' ,
  '(NOPROFILE NOSCREEN NOMSG'
RETURN
/* */
/* ++++++ */
ERROR:
/* ++++++ */
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR

SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL

'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVPSPC LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/* */

```

Exhibit 5.23: USVPSPC—VM/ESA EXEC for Printing a Selection Criteria Specification

- **dbxlib** — The file name of the load library into which you downloaded CA-IDMS/DATABASE EXTRACTOR.
- **idmslib** — The file name of the load library which contains your CA-IDMS load modules.
- **fn SYSCTL fm** — The file name, file type, and file mode of the SYSCTL file used by the Central Version (CV) during batch processing.
- **PROCESS** — Must be coded as is. Indicates that PROCESS keywords follow.
- **userid** — Required keyword used as primary key for selection of a CA-IDMS/DBX JCL member. This keyword is the user ID or lterm ID under which the member was saved.
- **specification-name** — Required keyword, used as secondary key for selection of a CA-IDMS/DBX Selection Criteria Specification.

Exhibit 5.24: Key to VM/ESA EXEC for Printing a Selection Criteria Specification

5.10 Printing Online Documentation--USVPRINT

The Computer Associates Online Documentation Print Utility provided with CA-IDMS/DBX allows error messages and other product information to be printed upon request.

Target or Distribution source library member USVPRINT (OS/390), TOOLJCL library member USVPRINT.S (VSE/ESA), or the USVPRINT EXEC (VM/ESA) contains the JCL to execute the Online Documentation Print Utility. Online documentation modules for CA-IDMS/DBX screens other than list or confirmation screens are shown in the table below.

The printed version of the online documentation is presented one screen per page and includes page reference indexes for screen options. Characters highlighted in the online documentation appear bolded in the printed version.

Module Name	Description
Generic Modules:	
COMMANDS	Generic EDITOR documentation.
CA-IDMS/DATABASE EXTRACTOR Modules:	
USVAARE	Area Selection List
USVABER	Begin Edit Record Selection List
USVACPL	Copy Utility Member List
USVACPY	Copy Utility
USVAEDJ	Edit JCL Entry Screen
USVAENT	Database Entry Point Selection Menu
USVAFLS	Field Level Selection Criteria Screen
USVAFMM	Field Mismatch Screen
USVAIDX	Index Entry Point Selection List
USVAJUT	JCL Utilities
USVAKEY	Display PF Key Values
USVAMEN	Table of Contents for Online Documentation
USVAREC	Record Entry Point Selection List
USVARLS	Record Level Selection Criteria Screen
USVASET	Path-Record Set Selection List
USVASPC	Specify Database Build Specification Screen
USVASUB	Submit JCL for Execution
USVASUT	Specification Utilities
USVAUTI	Utilities Menu
USVDBP	Creating a CA-IDMS/DBX Database Path
USVEXIT	Exiting from CA-IDMS/DBX
USVGENRL	General Information about CA-IDMS/DBX
USVMSG	CA-IDMS/DBX Messages
USVXFERF	Transfer Facility

Exhibit 5.25: Online Documentation Modules

5.11 Customizing the CA-IDMS/DBX Environment--USVTPARM

The CA-IDMS/DBX customization macro gives you the ability to change the following operational parameters:

- The task code used to invoke CA-IDMS/DBX.
- The dictionary into which the CA-IDMS/DBX online documentation modules were loaded at installation.
- The number of entries to allocate for the CA-IDMS/DBX set stack.
- From whom a user can copy other JCL members and Selection Criteria Specifications.
- The default for the RETAIN PHYSICAL SEQUENCE OF MEMBER RECORDS IN THE SET? field on the Record Level Selection Criteria screen.
- The default for the EXTRACT ALL OWNERS FOR EXTRACTED RECURSIVE RECORDS? field on the Record Level Selection Criteria screen.
- The default for the BEGIN VIEWING/EDITING IN THE MIDDLE OF A PATH DEFINITION? field on the Specify Database Extract Specification screen.
- Whether to have message NLYZ008 be a warning (W) message or an error (E) message. NLYZ008 is displayed at extract time when a mandatory member is being extracted without its owner. An error message prevents the Selection Criteria Specification from being used.

These runtime options can be changed at anytime after initial product installation, either before or after SMP/E ACCEPT (OS/390) or MSHP (VSE/ESA) processing. See the *CA-IDMS installation guides* for detailed instructions on processing customization macro changes.

```
TASK=task-code,
HLPDICT=help-dictionary-name,
HLPNODE=help-dictionary-node,
HLPVERS=help-dictionary-version,
STKENTS=set-stack-size,
COPY=USER|DBXADMIN|ANYONE,
RETSEQ=Yes|No,
XRECuro=Yes|No,
BGINMID=Yes|No,
NLYZ008=Warning|Error
```

Exhibit 5.26: USVTPARM--Customizing the CA-IDMS/DBX Environment

- **task-code** — The task code used to invoke CA-IDMS/DBX. The default is DBX.

- **help-dictionary-name** — The 1-8 character dictionary name of the dictionary into which the CA-IDMS/DBX online documentation modules were loaded at installation. The default is NULL for the default dictionary.
- **help-dictionary-node** — The 1-8 character dictionary node for help-dictionary-name. The default is NULL if no DDS.
- **help-version-number** — The version number at which USVTUTOR online documentation modules were added. From 1 to 9999. The default is 1.
- **set-stack-size** — The number of 8-byte entries to allocate for the CA-IDMS/DBX set stack. From 30-1000. The default is 50.
- **COPY=USER|DBXADMIN|ANYONE** — Specify from whom a user can copy other JCL members and Selection Criteria Specifications:
 - USER — From only the user
 - DBXADMIN — From the user plus any global members under the DBXADMIN user ID
 - ANYONE — From any user on the CA-IDMS/DBX database. This is the default.
- **RETSEQ=Yes|No** — Specify YES or NO to define the default (Yes or No) for the RETAIN PHYSICAL SEQUENCE OF MEMBER RECORDS IN THE SET? field on the Record Level Selection Criteria screen. The default is YES.
- **XRECURO=Yes|No** — Specify YES or NO to define the default (Yes or No) for the EXTRACT ALL OWNERS FOR EXTRACTED RECURSIVE RECORDS? field on the Record Level Selection Criteria screen. The default is YES.
- **BGINMID=Yes|No** — Specify YES or NO to define the default (Yes or No) for the BEGIN VIEWING/EDITING IN THE MIDDLE OF A PATH DEFINITION? field on the Specify Database Extract Specification screen. The default is NO.
- **NLYZ008=Warning|Error** — Specify WARNING or ERROR to define whether the message NLYZ008 is a warning message or an error message. NLYZ008 is displayed at extract time when a mandatory member is being extracted without its owner. An error message prevents the Selection Criteria Specification from being used. The default is WARNING.

Exhibit 5.27: Key to Customizing the CA-IDMS/DBX Environment

5.12 Writing a User Exit Module--CUVUSRXA

The copy book contained in sample JCL library member:

- For Assembler--CUVUSRXA (OS/390), or CUVUSRXA.S (VSE/ESA)
- For COBOL--CUVUSRXC (OS/390), or CUVUSRXC.S (VSE/ESA)

describes the input parameters that will be passed to a user exit module that you provide. This exit module is called by the Database Extract Component when:

- CA-IDMS/TDB is walking the source database looking for records to be extracted, and
- A record meets its Record Level Selection Criteria.

You can change the record data, add or delete fields to/from the record data, or prevent the record from being written to the file.

5.12.1 CUVUSRXA Rules and Guidelines

- If you change the record's length, you must update the record length (USVRECLN) to reflect the record's new data length. The record buffer is 32,732 bytes in length.
- Moving data past the end of any of the passed parameters causes unpredictable results.

```
* COPY CUVUSRXA ----- CA-IDMS/DBX *
*
* THIS COPY BOOK DESCRIBES THE PARAMETERS PASSED TO AN ASSEMBLER USER *
* EXIT MODULE WRITTEN FOR THE DATABASE EXTRACTOR (DBX) EXTRACT *
* COMPONENT. REFER TO CUVUSRXC FOR THE COBOL VERSION. THE USER *
* EXIT IS CALLED: *
*
* 1) ONLY FOR RECORDS WHICH MEET THEIR RECORD/FIELD LEVEL SELECTION *
* CRITERIA. *
* 2) PRIOR TO EACH RECORD BEING WRITTEN TO THE EXTRACT FILE. *
*
* YOU CAN CHANGE THE RECORD DATA, ADD OR DELETE FIELDS TO/FROM THE *
* RECORD DATA, OR PREVENT THE RECORD FROM BEING WRITTEN TO THE FILE. *
* IF YOU CHANGE THE RECORD'S LENGTH, YOU MUST UPDATE THE RECORD *
* LENGTH (USVRECLN) TO REFLECT THE RECORD'S NEW DATA LENGTH. THE *
* RECORD BUFFER IS 32,732 BYTES IN LENGTH. MOVING DATA PAST THE END *
* OF ANY OF THE PASSED PARAMETERS WILL CAUSE UNPREDICTABLE RESULTS. *
*
* THERE ARE THREE CONTROL BLOCKS PASSED TO THE USER EXIT. EACH *
* CONTROL BLOCK IS PRECEDED BY A TABLE WHICH EXPLAINS EACH PARAMETER *
* FIELD. *
*
*-----*
***
* COPY CUVUSRXA ----- CA-IDMS/DBX *
*-----*
***
*-----*
* STATUS CONTROL BLOCK: THIS IS THE FIRST BLOCK OF INFORMATION *
* PASSED TO THE USER EXIT. IT REFLECTS *
* THE GENERAL CONDITIONS UNDER WHICH THE USER *
* EXIT IS BEING INVOKED. TOTAL LENGTH IS 69 *
* BYTES. *
*-----*
* ITEM USAGE LENGTH DESCRIPTION *
*-----*
* SUBSCHEMA ALPHANUMERIC 8 BYTES NAME OF SUBSCHEMA BEING USED. *
* NAME *
```

```

* DATABASE BINARY 4 BYTES DATABASE KEY FOR CURRENT OF *
* KEY TRANSACTION RECORD. *
* CANCEL BINARY 2 BYTES ZERO TO INDICATE THAT THE *
* INDICATOR CURRENT OF TRANSACTION RECORD *
* SHOULD BE EXTRACTED; NON-ZERO *
* TO INDICATE THAT THE RECORD *
* SHOULD NOT BE EXTRACTED. *
* RECORD ALPHANUMERIC 18 BYTES NAME OF RECORD TYPE FOR CURRENT *
* NAME OF TRANSACTION. *
* AREA ALPHANUMERIC 18 BYTES NAME OF AREA TO WHICH CURRENT OF *
* NAME TRANSACTION RECORD IS ASSIGNED.*
* SET NAME ALPHANUMERIC 18 BYTES NAME OF SET IN WHICH CURRENT OF *
* TRANSACTION RECORD PARTICIPATES*
* AS EITHER AN OWNER OR MEMBER *
* (THE NAME OF THE SET THAT DBX *
* IS CURRENTLY WALKING); IF *
* SPACES, THEN THE CURRENT OF *
* TRANSACTION RECORD WAS OBTAINED*
* BY AN AREA SWEEP (A SET IS NOT *
* BEING WALKED). *
* SET ALPHANUMERIC 1 BYTE '0' INDICATES THAT THE CURRENT *
* RELATION- OF TRANSACTION RECORD IS AN *
* SHIP OWNER OF SET NAMED ABOVE; 'M' *
* INDICATES THAT THE RECORD IS A *
* MEMBER OF THE SET. *
*-----*
USV Parm1 DSECT PARAMETER #1 - STATUS INFORMATION
USVSSNM DS CL08 NAME OF SUBSCHEMA BEING USED
USVDBKEY DS F DATABASE KEY OF RECORD
USVCANCL DS H CANCEL INDICATOR: X
0 TO EXTRACT THE RECORD X
NON-ZERO TO CANCEL THE EXTRACTION.
USVRECNM DS CL18 NAME OF RECORD
USVARENM DS CL18 NAME OF AREA IN WHICH RECORD RESIDES
USVSETNM DS CL18 NAME OF SET IN WHICH RECORD PARTICIPATES X
- SPACES IF AREA SWEEP RECORD.
USVRELAT DS CL01 RELATIONSHIP OF RECORD TO SET:
USVOWNER EQU '0' OWNER OF THE SET
USVMEMBR EQU 'M' MEMBER OF THE SET.
USVPRM1L EQU *-USV Parm1 LENGTH OF PARAMETER #1
***
*-----*
* RECORD CONTROL BLOCK: THIS IS THE SECOND BLOCK OF INFORMATION *
* PASSED TO THE USER EXIT. IT CONTAINS *

```

```

*                               INFORMATION REGARDING THE CURRENT OF      *
*                               TRANSACTION RECORD TYPE WHICH HAS MET ITS  *
*                               RECORD LEVEL SELECTION CRITERIA.  TOTAL    *
*                               LENGTH IS 64 BYTES.                        *
* -----*
* ITEM          USAGE          LENGTH  DESCRIPTION                      *
* -----*
* RECORD NAME   ALPHANUMERIC  18 BYTES  NAME OF RECORD TYPE FOR CURRENT *
*                               OF TRANSACTION.                          *
* AREA NAME     ALPHANUMERIC  18 BYTES  NAME OF AREA TO WHICH CURRENT OF *
*                               TRANSACTION RECORD IS ASSIGNED.*
* RECORD ID     BINARY         2 BYTES  IDENTIFICATION NUMBER FOR       *
*                               CURRENT OF TRANSACTION RECORD.          *
* RECORD LENGTH BINARY         2 BYTES  LENGTH (DATA ONLY), IN BYTES, OF *
*                               CURRENT OF TRANSACT. RECORD; IF*
*                               YOU CHANGE THE LENGTH OF THE            *
*                               RECORD, YOU MUST UPDATE THIS           *
*                               FIELD TO REFLECT THE RECORD'S          *
*                               NEW DATA LENGTH.                       *
* CONTROL LENGTH BINARY         2 BYTES  LENGTH (DATA ONLY), IN BYTES, OF *
*                               CURRENT OF TRANSACTION RECORD          *
*                               UP TO AND INCLUDING THE LAST           *
*                               CALC OR SORT-CONTROL FIELD.            *
* MAXIMUM LENGTH BINARY         2 BYTES  ACTUAL LENGTH OF FIXED-LENGTH   *
*                               RECORD OR MAXIMUM LENGTH OF A          *
*                               VARIABLE-LENGTH RECORD, IN             *
*                               BYTES.                                  *
* DATABASE KEY  BINARY         4 BYTES  DATABASE KEY FOR CURRENT OF     *
*                               TRANSACTION RECORD.                    *
* RECORD LOW PAGE BINARY         4 BYTES  NUMBER OF LOWEST PAGE ON WHICH  *
*                               RECORDS OF THIS TYPE CAN EXIST.*
* RECORD HIGH PAGE BINARY         4 BYTES  NUMBER OF HIGHEST PAGE ON WHICH *
*                               RECORDS OF THIS TYPE CAN EXIST.*
* AREA LOW PAGE BINARY         4 BYTES  NUMBER OF LOWEST PAGE OF AREA   *
*                               TO WHICH RECORD IS ASSIGNED.          *
* AREA HIGH PAGE BINARY         4 BYTES  NUMBER OF HIGHEST PAGE OF AREA *
*                               TO WHICH RECORD IS ASSIGNED.          *
* -----*

```

```

USVPARAM2 DSECT          PARAMETER #2 - RECORD INFORMATION
USVRNAME DS   CL18      NAME OF RECORD
USVRARNM DS   CL18      NAME OF AREA IN WHICH RECORD RESIDES
USVRECID DS   H         RECORD IDENTIFICATION NUMBER
USVRECLN DS   H         LENGTH, IN BYTES, OF THE RECORD - IF YOU X
                        CHANGE THE RECORD'S DATA LENGTH, YOU X
                        MUST UPDATE THIS FIELD ACCORDINGLY.
USVRCNTL DS   H         DATA LENGTH, IN BYTES, OF RECORD UP TO & X
                        INCLUDING THE LAST CALC OR SORT CONTROL X
                        FIELD.
USVRMAXL DS   H         ACTUAL LENGTH IF FIXED LENGTH RECORD OR X
                        MAXIMUM LENGTH IF VARIABLE LENGTH X
                        RECORD, IN BYTES.
USVRDBK DS   F         DATABASE KEY OF RECORD
USVRLOPG DS   F         NUMBER OF LOWEST PAGE OF RECORD'S RANGE
USVRHIPG DS   F         NUMBER OF HIGHEST PAGE OF RECORD'S RANGE
USVALOPG DS   F         NUMBER OF LOWEST PAGE IN AREA
USVAHIPG DS   F         NUMBER OF HIGHEST PAGE IN AREA
USVPRM2L EQU  *-USVPARAM2 LENGTH OF PARAMETER #2
***
*-----*
* RECORD OCCURRENCE BLOCK: THIS IS THE THIRD BLOCK OF INFORMATION *
*                           PASSED TO THE USER EXIT. IT CONTAINS THE *
*                           ACTUAL RECORD OCCURRENCE FOR THE CURRENT *
*                           OF TRANSACTION RECORD. TOTAL LENGTH IS *
*                           DEFINED IN THE RECORD TYPE'S SUBSCHEMA *
*                           DESCRIPTION. *
*-----*
* ITEM          USAGE          LENGTH          DESCRIPTION          *
*-----*
* RECORD        AS DEFINED      AS DEFINED      ACTUAL CURRENT OF *
* OCCURRENCE    IN SUBSCHEMA    IN SUBSCHEMA    TRANSACTION RECORD. *
*-----*
USVPARAM3 DSECT          PARAMETER #3 - RECORD OCCURRENCE
USVRDATA DS   0X         ACTUAL DATABASE RECORD OCCURRENCE -
                        LENGTH AS DEFINED IN THE SUBSCHEMA.

```

Exhibit 5.28: CUVUSRXA--Copy Book for Writing a User Exit Module

Chapter 6. Messages

This chapter describes the messages generated by CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX). CA-IDMS/DBX messages are preceded by an alphanumeric code that ends with a letter indicating the severity. The severity code is either **I**, **W**, or **E**. This chapter lists for each message the code, the text, and an explanation.

Informative — The severity code **I** indicates an informative message. Informative messages are for your information only; no remedial action is required.

Warning — The severity code **W** indicates a warning. Warning messages report conflicting data or various processing conditions that may require action.

Error — The severity code **E** indicates an error. When CA-IDMS/DBX encounters an error condition, an error message appears on your screen. Error messages report erroneous and conflicting data that require action.

In addition Record/Element Subroutine messages are generated. These messages are in the format *annnn*, where *a* is a one-character identifier and *nnnn* is a unique message number.

COMM001E COMMUNICATION FILE IS EMPTY

Reason: The batch Communication File was not properly passed between modules.

Action: Correct the JCL stream to properly pass the Communication File between the batch modules. Refer to Chapter 5, “Operations” for information on the JCL required to run the batch components.

CVTX001E SHORT ON STORAGE...number BYTES REQUESTED

Reason: The number of bytes required for executing the convert extract module utility was not available in the region/partition.

Action: Increase the region/partition size and resubmit the job. See Chapter 5, “Operations” for information about CA-IDMS/DBX storage requirements.

CVTX002I THE file-name FILE HAS BEEN SUCCESSFULLY CONVERTED

Reason: The indicated file was successfully converted to be used by CA-IDMS Release 15.0.

Action: Proceed with the remaining steps of the conversion.

CVTX003E INVALID EXTRACT FILE - EXTRACT type RECORD WAS NOT FOUND OR IS INVALID

Reason:

1. The EXTRACT step that created the Extract File was cancelled before the indicated extract record was written.

-
2. The file being read is not a CA-IDMS/DBX Extract File.
 3. The Extract File was not created by Release 15.0 of the CA-IDMS/DBX EXTRACT module.

Action:

1. Rerun the EXTRACT step.
2. Resubmit the job using a valid Extract File.
3. Rerun the EXTRACT step using Release 15.0 of CA-IDMS/DBX.

CVTX004E INVALID PSUB BLOCK DETECTED: name

Reason: An internal error has been detected while CA-IDMS/DBX was building a pseudo subschema.

Action: Ensure that CA-IDMS/DBX was installed and linked successfully, and is being executed from the proper library.

DBX0001E COMMAND "name" IS NOT ACTIVE FOR THIS FUNCTION

Reason: A command was entered that is not active for the current function or is not recognized by CA-IDMS/DBX.

Action: Enter a command that is active for the current function.

DBX0002E THE PF KEY PRESSED IS NOT ACTIVE FOR THIS FUNCTION

Reason: A PF key was pressed. However, the PF key is associated with a command that is inactive for the current function.

Action: Press a PF key that is associated with a command that is active for the current function. Enter the KEYS command in the COMMAND/OPTION field to determine the current PF key settings.

DBX0003E YOU CAN ONLY "QUIT" EDITING OF A PREVIOUSLY COMPLETED PATH DEFINITION

Reason: A QUIT command was entered on the Path Record Set Selection List screen when creating a new path definition. However, a QUIT command can only be used when editing (that is, viewing or modifying) a previously completed path definition.

Action: Enter an END command to terminate the path at the current record.

DBX0004E AN ERROR OCCURRED DURING RECOVERY PROCEDURES

Reason: An error has been detected while CA-IDMS/DBX was attempting to recover from a system problem.

Action:

-
1. If you were editing or viewing a specification when the problem occurred, a recovery cannot be made. You must reenter the Specify component and start the editing or viewing from the beginning of the specification.
 2. Otherwise, to access CA-IDMS/DBX again, you must either:
 - a. Logoff your terminal, log on again, and reenter the CA-IDMS/DBX task code from the CA-IDMS/DC prompt; or
 - b. Cycle the CA-IDMS CV.

DBX0005E INTERNAL ERROR - diagnostics

Reason: An internal processing error, indicated by the diagnostics message, was detected by CA-IDMS/DBX.

Action: Contact Computer Associates Product Support with the message and diagnostics text.

DBX0006E ALL indexed RECORDS ARE ALREADY PART OF A PATH DEFINITION

Reason: On the Database Entry Point Selection Menu, you selected:

1. A record without entering a record name and all records were already included in a path definition; or
2. An index without entering an index name and all indexed records were already included in a path definition.

Action: If you require another entry point into the source database, first deselect a path set. This removes all records and sets included in the path after the deselected set from the path definition and makes the affected records available as entry points.

DBX0007E YOU MUST ENTER A VALUE GREATER THAN 0 FOR THE NUMERIC FIELD

Reason: A field was selected. However, an associated numeric field (where the cursor resides) contains 0.

Action: Enter a value greater than 0 in the numeric field and press the ENTER key.

DBX0008E UNABLE TO TRANSFER TO "function-name"

Reason: A command was entered to transfer to a CA-IDMS/DBX function that is not accessible from the current function.

Action: Enter a command that is active for the current function.

DBX0009E SUBROUTINE ERROR - diagnostics

Reason: A subroutine error, indicated by *diagnostics*, has occurred.

Action: Contact Computer Associates Product Support with the message and diagnostics text.

DBX0010E LINE NUMBER IS > MAXIMUM LINE NUMBER ALLOWED FOR THE SUBSCHEMA

Reason: The line number part of a DBKEY specification is greater than the maximum line number value allowed for the source subschema.

Action: Enter a valid line number for the DBKEY and press the ENTER key.

DBX0011I SELECTION CRITERIA DEFINITION COMPLETE

Reason: Selection criteria for all entry records and records in all paths has been specified.

Action: None.

DBX0012E THE PAGE NUMBER IS OUTSIDE THE VALID PAGE RANGE FOR THE RECORD TYPE

Reason: The entered page number is less than the "FROM" page number or greater than the "TO" number for the current record type. The "FROM" and "TO" page numbers are displayed at the top of the screen.

Action: Enter a valid page number and press the ENTER key.

DBX0013I MAKE A SELECTION BEFORE PRESSING ENTER OR TERMINATE WITH "END" COMMAND

Reason: An entry required on the CA-IDMS/DBX screen has not been made.

Action:

1. Provide the required entry and press the ENTER key.
2. Terminate the current CA-IDMS/DBX function with an END command.

DBX0014E THE TRANSFER FACILITY IS DISABLED FOR THIS FUNCTION

Reason: A command to transfer to another CA-IDMS/DBX function was entered. However, the current function does not permit transferring to another function.

Action: Enter a command that is active for the current function.

DBX0015I entry/path area/record/index/set SUCCESSFULL DESELECTED - PRESS ENTER KEY TO CONTINUE

Reason: The deselection of the area, Entry Record, Entry Index, or path set was successfully completed.

Action: Press the ENTER key to continue CA-IDMS/DBX processing.

DBX0016E "FROM" PAGE GREATER THAN "TO" PAGE

Reason: The "FROM" page number for a FROM/TO page number specification is greater than the "TO" page number.

Action: Enter a "FROM" page number that is smaller than the "TO" page number, and press the ENTER key.

DBX0017I PATH DEFINITION COMPLETE FOR ENTRY record/index name

Reason: Selection criteria for the entry record and all records included in the indicated path has been specified.

Action: None.

DBX0018I EDITING AN EXISTING SELECTION CRITERIA SPECIFICATION

Reason: You have entered the name of a Selection Criteria Specification that CA-IDMS/DBX has retrieved from its database.

Action: You may view and/or modify the specification.

DBX0019E "name" ERROR - INVALID PARM LIST

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0020E ESAMnnnn - INVALID PARAMETER LIST

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0021E ESAMnnnn - ILLEGAL CALL (PUT BEFORE OPEN)

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0022E ESAMnnnn - I/O ERROR nnnn OCCURRED

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0023E ESAMnnnn - UNEXPECTED RETURN CODE CREATING THE SOURCE TEXT AREA

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0024E ESAMnnnn - END OF FILE REACHED (BEYOND BOTTOM)

Reason: An ESAM/EDITOR interface call failed.

Action: Contact Computer Associates Product Support with this message.

DBX0025I NEW SELECTION CRITERIA IS BEING CREATED

Reason: You have entered the name of a Selection Criteria Specification that was not found on the CA-IDMS/DBX database.

Action: Continue with the Selection Criteria Specification. When you exit the Selection Criteria Specification component, the specification is saved on the CA-IDMS/DBX database.

DBX0026I RECOVERY WAS SUCCESSFUL

Reason: A previously terminated session was successfully restarted.

Action: None.

DBX0027E BAD RETURN OF nnnn FROM KEY HANDLER

Reason: The PF key handler returned an invalid code, indicated by *nnnn*.

Action: Contact Computer Associates Product Support with this message.

DBX0028I FUNCTION TERMINATED BY USER REQUEST

Reason: The current function was terminated by entering an END command. No CA-IDMS/DBX processing was performed.

Action: None.

DBX0029E THE NUMBER CANNOT BE GREATER THAN nnnn

Reason: A field was selected. However, an associated numeric field (where the cursor resides) contains a value greater than the indicated maximum value allowed.

Action: Enter a value less than or equal to the maximum value allowed, and press the ENTER key.

DBX0030E INVALID SOURCE/TARGET SUBSCHEMA AND/OR DBNAME

Reason:

1. The entered source or target subschema was not found in the specified dictionary or load/core image library.
2. The entered dbname could not be found in the DB table or is not a valid segment name in the DMCL being used. The dbname or segment maps the logical subschema view to a physical database. This is required because you can specify page numbers in your specification.

Action:

1. Enter a valid subschema name.
2. Enter a valid dbname or segment.

Press the ENTER key.

DBX0031E A "PRINT-JCL" JCL MEMBER IS REQUIRED TO PRINT A JCL MEMBER

Reason: An attempt was made to print a JCL member using the JCL Print Utility. To do this, you must have a JCL member named "PRINT-JCL". However, a "PRINT-JCL" member was not found on the CA-IDMS/DBX database.

Action: Create a JCL member, named "PRINT-JCL", which contains the appropriate JCL to invoke the JCL Print Utility. The member "-MODEL-PRINT-JCL" may be used to assist in creating the required member. Select the PRINT JCL option again, and press the ENTER key.

DBX0032E ERROR BUILDING source/target PSUB: diagnostics

Reason: An error was detected while building the indicated pseudo subschema table.

Action: Contact Computer Associates Product Support with this message and diagnostics text.

DBX0033E BOTH SOURCE AND TARGET SUBSCHEMA NAMES MUST BE ENTERED

Reason: A new Selection Criteria Specification is being created because the entered specification name was not found on the CA-IDMS/DBX database. However, either a source and/or target subschema name was not entered. Both subschema names are required even if you told CA-IDMS/DBX not to compare the subschemas.

Action: Enter both source and target subschema names, and press the ENTER key.

DBX0034E OPTION "x" IS NOT VALID FOR THIS FUNCTION

Reason:

-
1. An invalid option code for the current screen was entered.
 2. A deselection request was made, but the set was not selected.
 3. A hierarchical or network selection of an area was requested. A hierarchical or network selection can only be performed on a record or index.

Action:

1. Enter a valid option code, and press the ENTER key.
2. Remove the deselection code.
3. Remove the hierarchical or network selection code from the Area field.

DBX0035E area/record/index name INVALID OR OPTION CANNOT BE PERFORMED ON THE area/record/index

Reason:

1. The name of the indicated area, record, or index does not appear in the source subschema.
2. A deselection request was made but the indicated item was not selected. If an area, the area does not contain any Entry Records.
3. A hierarchical or network selection was made but the indicated item was already selected.

Action:

1. Enter a valid name, and press the ENTER key.
2. Enter the name of an area, record, or index which has been selected, and press the ENTER key.
3. Remove the hierarchical or network selection code.

DBX0036E ONLY ONE ITEM MAY BE (DE)SELECTED AT A TIME

Reason: More than one item on the screen is selected or deselected. The current screen, however, allows only one item to be selected or deselected at a time.

Action: Enter an option for only one item, and press the ENTER key.

DBX0037E DATA LENGTHS FOR name RECORD NOT THE SAME IN BOTH SUBSCHEMAS

Reason: The indicated record name does not have the same data lengths in both the source and target subschemas.

Action: Specify source and target subschemas containing record types that have the same data lengths, and press the ENTER key.

DBX0038I SPECIFICATION name SAVED

Reason: The indicated Selection Criteria Specification was successfully saved on the CA- IDMS/DBX database.

Action: None.

DBX0039I JCL SUBMITTED

Reason: The JCL member selected was successfully submitted to the host operating system.

Action: None.

DBX0040E JCL MEMBER NAME DOES NOT EXIST - REENTER JCL MEMBER NAME

Reason: A request was made to perform a JCL utility function on a JCL member. However, the entered JCL member name was not found on the CA-IDMS/DBX database.

Action: Reenter the JCL member name and press the ENTER key.

DBX0041E SPECIFICATION NAME DOES NOT EXIST - REENTER SPECIFICATION NAME

Reason: A request was made to perform a specification utility function on a specification. However, the entered specification name was not found on the CA-IDMS/DBX database.

Action: Reenter the specification name and press the ENTER key.

DBX0042I JCL MEMBER name SUCCESSFULLY action

Reason: The indicated action was successfully performed on the JCL member.

Action: None.

DBX0043E ENTER SPECIFICATION NAME

Reason: A request was made to perform a specification utility function. No specification name was entered, however.

Action: Enter a specification name and press the ENTER key.

DBX0044E ENTER SPECIFICATION NEWNAME

Reason: A request to copy or rename a Selection Criteria Specification was made. A Newname was not entered, however.

Action: Enter a Newname and press the ENTER key.

DBX0045E USER OWNS NO JCL MEMBERS

Reason: A request to display the JCL Member List screen was made. There are, however, no JCL members on the CA-IDMS/DBX database for the current user.

Action: None.

DBX0046E USER OWNS NO SELECTION CRITERIA SPECIFICATIONS

Reason: A request to display the specification list screen was made. There are, however, no specifications on the CA-IDMS/DBX database for the current user.

Action: None.

DBX0047E ENTER JCL MEMBER NAME

Reason: A request was made to perform a JCL member utility function but a JCL member name was not entered.

Action: Enter a JCL member name and press the ENTER key.

DBX0048E ENTER JCL MEMBER NEWNAME

Reason: A request to copy or rename a JCL member was made but a Newname was not entered.

Action: Enter a Newname and press the ENTER key.

DBX0049E newname JCL MEMBER ALREADY EXISTS

Reason: A request was made to copy or rename a JCL member. However, a JCL member with the same name as *newname* was found on the CA-IDMS/DBX database.

Action: Enter *newname* with the name of a JCL member not already on the CA-IDMS/DBX database and press the ENTER key.

DBX0050E NEWNAME SPECIFICATION ALREADY EXISTS

Reason: A request was made to copy or rename a Selection Criteria Specification. However, a specification with the same name as *newname* was found on the CA-IDMS/DBX database.

Action: Enter *newname* with the name of a specification not already on the CA-IDMS/DBX database and press the ENTER key.

DBX0051I SPECIFICATION name SUCCESSFULLY action

Reason: The indicated action was successfully performed on the Selection Criteria Specification.

Action: None.

DBX0052E A "PRINT-SPEC" JCL MEMBER IS REQUIRED TO PRINT A SPECIFICATION

Reason: An attempt was made to print a Selection Criteria Specification using the Specification Print utility. This action requires a JCL member named "PRINT-SPEC". A "PRINT-SPEC" member was not found on the CA-IDMS/DBX database, however.

Action: Create a "PRINT-SPEC" JCL member which contains the appropriate JCL to invoke the batch print specification utility. The member "-MODEL-PRINT-SPEC" may be used to assist in creating the required member. Select the PRINT specification option again, and press the ENTER key.

DBX0053I ALL UTILITY FUNCTIONS COMPLETED SUCCESSFULLY

Reason: All requested utility functions were performed successfully.

Action: None

DBX0054I SPECIFICATION name NOT SAVED

Reason: A CANCEL request was entered during a Selection Criteria Specification session. The session was terminated without saving the Selection Criteria Specification on the CA-IDMS/DBX database.

Action: None.

DBX0055E name record/set FOUND IN SOURCE BUT NOT IN TARGET SUBSCHEMA

Reason: The indicated record or set was found in the source subschema but not in the target subschema. Except for system owned integrated index sets, the source and target subschemas must contain the same record and set names.

Action: Specify source and target subschemas that contain the same record and set names and press the ENTER key.

DBX0056E name RECORD NOT an/a owner/member OF name SET IN TARGET SUBSCHEMA

Reason: The named record is either an owner or member of the named set in the source subschema. The set, however, does not have the same owner and members in the target subschema. A record type that is an owner of a set in the source subschema must be the owner of the same set in the target subschema. A record type that is a member of a set in the source subschema must be a member of the same set in the target subschema.

Action: Specify source and target subschemas defining records and sets related in the same manner and press the ENTER key.

DBX0057I nnnn RECORDS AND nnnn SETS SELECTED IN THE HIERARCHY

Reason: The indicated number of records and sets were selected by CA-IDMS/DBX when it performed a hierarchical selection. If a record was selected, it was marked as an Entry Record and all members of sets owned by the Entry Record were also selected. Selected member records were treated as if they were the Entry Record. If an index was selected, it was marked as an Entry Index and all members of sets owned by the indexed record were also selected. Selected member records were treated as if they were the indexed record. Record Level Selection Criteria for all records in the hierarchy indicates to extract all record occurrences.

Action: Modify the Record Level Selection Criteria of record types in the hierarchy for which unique selection criteria are desired.

DBX0058I "QUIT" COMMAND ACCEPTED FOR ENTRY record/index name

Reason: A QUIT command was entered on a Path-Record Set Selection List screen when editing the path definition for the indicated record or index. Editing of the path was terminated.

Action: None.

DBX0059W INSERTION POINT NOT FOUND IN JCL MEMBER - NO PARAMETER STMT INSERTED

Reason: A request was made to submit a JCL member. The necessary insertion point was not found in the JCL member, however, so no PROCESS parameter statement was inserted. The unaltered JCL member was successfully submitted to the host operating system.

Action: If you want CA-IDMS/DBX to create a PROCESS statement for you, modify the JCL member accordingly.

OS/390 users:insert a

//SYSIPT DD *

statement in the EXTRACT, PRTJCL, or PRTSPEC step of the USVEXEC, USVPJCL, or USVPSPC JCL, respectively.

VSE/ESA users: ensure the JCL contains an EXEC statement for USVXTRC, USVPJCL, or USVPSPC.

VM/ESA users: ensure the JCL contains an OSRUN statement for USVXTRC, USVPJCL, or USVPSPC.

If you do not want CA-IDMS/DBX to create a PROCESS statement for you, no action is needed.

DBX0060E SPEC SAVED BY RELEASE (release) NOT COMPATIBLE WITH CURRENT RELEASE

Reason: You are attempting to use a release of CA-IDMS/DBX that is not compatible with the indicated prior release, or the specification that you are attempting to use could not be converted to the current release.

Action: Ensure that you have successfully preformed the conversion process when moving from one release of CA-IDMS/DBX to a more recent release. See Appendix B, "Converting to CA-IDMS/DBX Release 15.0" on page B-1. Do not attempt to go from a recent release to an older release. Correct the situation as necessary. Resubmit the job.

DBX0061E SUBMIT FAILED - system IS NOT A SUPPORTED OPERATING SYSTEM

Reason: An attempt was made to submit JCL to the host operating system. The attempt failed, however, because CA-IDMS/DBX is installed in a CV that has an active operating system other than OS/390, VSE/ESA, or VM/ESA.

Action: Contact Computer Associates Product Support with this message.

DBX0062E SET_STACK OVERFLOW

Reason: CA-IDMS/DBX was attempting to save set information in a stack area. No more room was available, however. Generally, one stack entry is needed for each set in a path. When a very complex specification is created, the default value is insufficient.

Action:

1. Use the USVTPARM macro to define a larger value for the number of stack entries.
2. After making this change, cycle your CV, or do a "DCMT VARY PRO USVTPARM NCI".
3. Then reenter CA-IDMS/DBX.

See Chapter 5, "Operations" for more information on the USVTPARM macro.

DBX0063E FIRST CHARACTER OF NAME MUST BE NON BLANK

Reason: A name was entered with a blank as the first character. The first character of the name must not be blank.

Action: Delete all leading blanks from the name and press the ENTER key.

**DBX0064E INVALID NAME - ENTER TRANSFER COMMAND IN
COMMAND/OPTION FIELD**

Reason: A transfer command (that is, a name containing an equal sign "=" as the first character) was entered in a field other than the COMMAND or OPTION field. A transfer command can only be entered in the COMMAND or OPTION field.

Action: Reenter the transfer command in the COMMAND or OPTION field and press the ENTER key.

**DBX0065E INVALID CHARACTER IN NAME; VALID CHARS ARE
A-Z,0-9,@,#,\$,"-**

Reason: A name was entered and contained a character other than the letters A through Z, numbers 0 through 9, and special characters "@" "#" "\$" "-" (at, pound, dollar, and hyphen).

Action: Reenter the name using only valid characters and press the ENTER key.

DBX0066E INVALID NAME - IMBEDDED BLANKS ARE NOT ALLOWED

Reason: A name was entered with embedded blanks, which are not allowed in a name.

Action: Delete all embedded blanks from the name and press the ENTER key.

**DBX0067E DICTIONARY NAME AND/OR NODE NOT VALID FOR THE
source/target SUBSCHEMA**

Reason: A DICTNAME and/or DICTNODE was entered for the indicated subschema. The specified DICTNAME or DICTNODE could not be found, however.

Action: Reenter a valid DICTNAME and/or DICTNODE and press the ENTER key.

**DBX0068E PATH DEFINITION TERMINATED PREMATURELY -
SPECIFICATION CANNOT BE USED**

Reason:

1. An END command was entered while specifying Record Level Selection Criteria. However, record level selection for ALL owners and members of selected sets in the path has not been specified.
2. Field Level Selection Criteria was selected for a record on the Record Level Selection Criteria screen but no Field Level Selection Criteria was specified.

Action: Complete the Selection Criteria Specification prior to attempting to use it in an extraction.

DBX0069I JCL MEMBER name NOT SAVED

Reason:

-
1. A CANCEL request was entered after changes were made to the JCL member.
 2. A request was made to save a JCL member that had no changes made to it.

The current EDITOR session was terminated without saving the JCL member on the CA-IDMS/DBX database.

Action: None.

DBX0070I JCL MEMBER name SAVED

Reason: The indicated JCL member was successfully saved on the CA-IDMS/DBX database.

Action: None.

DBX0071E BIND RUN-UNIT ERROR "nnnn" FOR THE SOURCE/TARGET DICTIONARY

Reason: A non-zero error status (*nnnn*) was returned when a BIND RUN UNIT (using IDMSNWKA as the subschema) was issued for the indicated dictionary.

Action: See the *CA-IDMS Codes and Messages* manual for the status indicated. Correct the situation as necessary. Resubmit the job.

DBX0072E YOU MUST ENTER EITHER "Y" OR "N" IN THIS FIELD

Reason: A character other than “Y” or “N” was entered in a field where only “Y” or “N” is acceptable.

Action: Enter either “Y” or “N”, and press the ENTER key.

DBX0073E ENTER USER-ID

Reason: A request was made to perform a copy operation. No user ID was entered, however.

Action: Enter a user ID and press the ENTER key.

DBX0074E INVALID USER-ID

Reason: A request was made to perform a copy operation. The user ID that was entered was not found on the CA-IDMS/DBX database, however.

Action: Enter a valid user ID and press the ENTER key.

DBX0075I ENTER OPTION

Reason: A request was made to perform a CA-IDMS/DBX utility function. No option was entered, however.

Action: Enter a valid option and press the ENTER key.

DBX0076I nnnn RECORDS AND nnnn SETS SELECTED IN THE NETWORK

Reason: The indicated number of records and sets were selected by CA-IDMS/DBX when it performed a network selection. If a record was selected, it was marked as an Entry Record and all owners and members of sets owned by the Entry Record were also selected. Selected owner and member records were treated as if they were the Entry Record. If an index was selected, it was marked as an Entry Index and all owners and members of sets owned by the indexed record were also selected. Selected owner and member records were treated as if they were the indexed record. Record Level Selection Criteria for all records in the network indicates to extract all record occurrences.

Action: Modify the Record Level Selection Criteria of record types in the network for which unique selection criteria are desired.

DBX0077I action FIELD SELECTION DATA FOR "condition" (operator) CONDITION

Reason: A request was made to have CA-IDMS/DBX select a record from the source database if the data within the record meets the specified condition. A single condition of Equal (EQ), Not Equal (NE), Greater Than (GT), Greater Than or Equal (GE), Less Than (LT), or Less Than or Equal (LE) was selected. Action indicates whether the criteria is new (Enter) or existing (Modify).

Action: Fill in the appropriate data to be used by CA-IDMS/DBX for comparison when extracting data from the source database. Enter an END command or press the End PF key (default PF3) when you are finished specifying your data.

DBX0078I action FIELD SELECTION DATA FOR upper/lower LIMIT OF "within/not within" RANGE

Reason: A request was made to have CA-IDMS/DBX select a record from the source database if the data is within or not within a specified range. Two screens of data must be filled in: one for the lower limit and one for the upper limit. A record's data falls within the range if it is greater than or equal to the lower limit's data and less than or equal to the upper limit's data. Action indicates whether the criteria is new (Enter) or existing (Modify).

Action: Fill in the appropriate data to be used by CA-IDMS/DBX for comparison when extracting data from the source database. Enter an END command or press the End PF key (default PF3) when you are finished specifying your data. If you are currently specifying the lower limit, you must specify the upper limit after completing the lower limit data.

DBX0079E FIELD LEVEL CRITERIA CANNOT BE USED FOR THE name RECORD

Reason: A request was made to view/edit previously saved field level selection criteria. The record description in the dictionary, however, was updated since the criteria was last saved. The displacements and/or field lengths of referenced fields were modified. The saved selection criteria cannot be used.

Action: Delete the criteria by pressing the ENTER key on the Confirm Subschema Record Date screen and reenter your field level selection criteria.

DBX0080I NEW FIELD LEVEL CRITERIA IS BEING CREATED

Reason: A request was made to view or edit field level selection criteria. No field level selection criteria exists for the current record.

Action: Select the required operand and press the ENTER key.

DBX0081I EDITING EXISTING FIELD LEVEL CRITERIA

Reason: A request was made to view or edit field level selection criteria. Field level selection criteria was previously specified and saved for the current record.

Action: To view the criteria:

1. Press the ENTER key.

To modify the operand:

1. Blank out the operand filled in by CA-IDMS/DBX.
2. Select the required operand.
3. Press ENTER.

DBX0082I ALL EXISTING CRITERIA HAVE BEEN VIEWED -- ENTER ADDITIONAL CRITERIA

Reason: A request was made to view or edit previously saved field level selection criteria. All the criteria have been viewed for the current record.

Action: To enter additional field level criteria:

1. Select the required operand
2. Press ENTER.

If no additional criteria is required:

1. Enter an END command.

DBX0083E INVALID DESPECIFY CHAR; VALID CHARS ARE BETWEEN HEX 4A AND 7F OR '\'

Reason: A despecify character other than one of the following was entered: \$%&* .,; <>() +-=# @_(vertical bar)(broken vertical bar)^\? " ' and !. The despecify character

is used on the Record Element Review screen to despecify a field (that is, to remove any values from the field) and is placed in the first position of the field.

Note: You cannot blank out or null out a field to despecify it because blanks and low-values are valid field values.

Action: Enter a valid despecify character and press the ENTER key.

DBX0084E THERE ARE more/less UPPER LIMIT (mmm) THAN LOWER LIMIT (nnn) FIELD VALUES

Reason: The upper limit for a range of field level selection criteria values is being specified. The same number of field values was not entered as specified for the lower limit. The number of upper limit values entered is *mmm*. The number of lower limit values entered is *nnn*. The lower limit field values are redisplayed.

Action: Verify that the correct lower limit values are specified. Enter the same number of field values for the upper limit as were specified for the lower limit.

DBX0085E ALL ENTERED VALUES MUST BE GREATER THAN OR EQUAL TO LOWER LIMIT VALUES

Reason: The upper limit for a range of field level selection criteria values is being specified. At least one of the upper limit values is less than the corresponding value specified for the lower limit. The lower limit field values are redisplayed.

Action: Verify that the correct lower limit values are specified. Enter the upper limit field values making sure that all values are equal to, or greater than, the values specified for the lower limit.

DBX0086E COMMAND "name" IS NOT RECOGNIZABLE

Reason: More than one match was found in the CA-IDMS/DBX verb table for the command that was entered. The truncated name you used for the command was too short.

Action: Enter more letters for the command.

DBX0087E ENTER NAME

Reason:

1. A deselection request was made but the name of the record or index was not entered.
2. A hierarchical or network selection was made but the name of the record or index was not entered.

Action:

-
1. Enter the name of a selected record or index to be deselected and press the ENTER key.
 2. Enter the name of a record or index that is not already selected and press the ENTER key.

DBX0088W DATA WAS ENTERED FOR A FIELD BUT THE FIELD WAS NOT SELECTED

Reason: Data was entered into a field but the field that marks the entry for selection was not selected.

Action: Either remove the data from the field (by blanking or nulling it out) or properly select the field, and press the ENTER key.

DBX0089E name RECORD IS MEMBER OF AN ENTRY INDEX

Reason: A request was made to select the named record as an Entry Record. The record is a member of an Entry Index, however.

Action:

1. Deselect the Entry Index owning the named record, then select the record as an Entry Record.
2. Enter the name of another record to be selected as an Entry Record.

DBX0090E MEMBER RECORD OF name INDEX IS AN ENTRY RECORD

Reason: A request was made to select the named index as an Entry Index. The member of the index is an Entry Record, however.

Action:

1. Deselect the member of the named index, then select the index as an Entry Index.
2. Enter the name of another index to be selected as an Entry Index.

DBX0091I FIELD LEVEL CRITERIA SUCCESSFULLY DELETED- PRESS ENTER KEY TO CONTINUE

Reason: The deletion of field level selection criteria was successfully completed.

Action: Press the ENTER key to continue CA-IDMS/DBX processing.

DBX0092E CRITERIA NUMBER CANNOT BE GREATER THAN CURRENT TOTAL + 1 (nnn)

Reason: A number greater than the current total of specified criteria + 1 was entered. A number that is one more than the current total indicates to position after the last set of criteria.

Action: Enter a criteria number that is less than or equal to the current criteria total + 1, which is indicated by *nnn*.

DBX0093E CANNOT CHANGE OPERATOR FROM A RANGE TO A NON-RANGE CONDITION

Reason: An attempt was made to modify the operand for an existing criterion from WITHIN or NOT WITHIN to EQ, NE, LT, LE, GT, or GE. The operand can only be changed to WITHIN or NOT WITHIN. The original criterion is displayed.

Action: If you wish to modify the operand, select either WITHIN or NOT WITHIN, and press the ENTER key.

DBX0094E CANNOT CHANGE OPERATOR FROM A NON-RANGE TO A RANGE CONDITION

Reason: An attempt was made to modify the operand for an existing criterion from EQ, NE, LT, LE, GT, or GE to WITHIN or NOT WITHIN. The operand can only be changed to EQ, NE, LT, LE, GT, or GE. The original criterion is displayed.

Action: If you wish to modify the operator, select either EQ, NE, LT, LE, GT, or GE, and press the ENTER key.

DBX0095E FIELD MUST CONTAIN ONLY NUMBERS

Reason: Non-numeric characters (such as letters, spaces, or punctuation marks) were entered into a field that must only contain numbers.

Action: Correct the field so that it contains only the desired numbers. Use the ERASE EOF key when the desired number is shorter than the field (or pad the number with leading zeroes).

DBX0096E name RECORD IS ALREADY PART OF A PATH

Reason: A request was made to select the named record as an Entry Record. The record already participates in a path, however.

Action:

1. Deselect the named record, then select the record as an Entry Record.
2. Enter the name of another record to be selected as an Entry Record.

DBX0097E MEMBER RECORD OF name INDEX IS ALREADY PART OF A PATH

Reason: A request was made to select the named index as an Entry Index. However, the member of the index already participates in a path.

Action:

-
1. Deselect the member of the named index, then select the index as an Entry Index.
 2. Enter the name of another index to be selected as an Entry Index.

DBX0098E YOU ARE ALLOWED TO COPY ONLY YOUR OWN SPECS/JCL MBRS

Reason: A request was made to perform a copy operation and you entered a user ID other than your own. You are authorized, however, to copy only your own specifications and JCL members.

Action: Enter your user ID and press the ENTER key.

DBX0099E YOU ARE ALLOWED TO COPY ONLY YOUR OWN AND 'DBXADMIN'S SPECS/JCL/MBRS

Reason: A request was made to perform a copy operation and you entered a user ID other than your own or DBXADMIN. You are authorized, however, to copy only your own specifications and JCL members and global specifications and JCL members owned by DBXADMIN.

Action: Enter your user ID or 'DBXADMIN', and press the ENTER key.

DBX0100E INVALID source/target DMCL NAME

Reason: The entered source or target DMCL name could not be found in the load/core image library.

Action: Enter a valid DMCL name and press the ENTER key.

DBX0101E ENTER DB OR SEGMENT NAME

Reason: A request was made to create a new specification or view/edit an existing specification. A dbname or segment name was not entered, however. The dbname or segment maps the logical subschema view to a physical database. This action is required because you can specify page numbers in your specification.

Action: Enter a valid dbname or segment name, and press the ENTER key.

DBX0102E record/set/mbrset/area name NOT FOUND IN THE SUBSCHEMA

Reason: CA-IDMS/DBX retrieved a specification from its database and was attempting to update the subschema with the Record Level Selection Criteria for the named item. However, the record, set, or area could not be found. The most likely cause of this error is the subschema used to create the specification was modified after the specification was saved. The named record, set, or area was deleted from the subschema. You cannot use the specification if the subschema no longer contains records, sets, or areas referenced in any path in the specification.

Action: Delete the specification and recreate it using the updated subschema.

DBX0103I nnnn RECORDS AND nnnn SETS SELECTED

Reason: A combination of hierarchical and network selections were made. The total number of records and sets selected by the hierarchical and network selections are displayed.

Action: Modify the Record Level Selection Criteria of record types in the paths for which unique selection criteria are desired.

DBX0104E YOU MUST SELECT A SCHEMA/VERSION COMBINATION FOR FIELD LEVEL CRITERIA

Reason: Field Level Selection Criteria were requested for the current path record. However, there is more than one occurrence of the subschema you specified on the Specify Database Extract Specification screen in the dictionary. You entered an END command on the Schema Version List screen without selecting a schema/version.

Action: Select a field level selection criteria operator, and press the ENTER key. The Schema Version List screen will be redisplayed, allowing you to make a selection.

**DICT001I BUILDING ELEMENT DESCRIPTORS FOR RECORD name
VERSION nnnn**

Reason: CA-IDMS/DBX prepares to access the dictionary and build a description of all elements for the named record.

Action: None.

**DICT002I THE ELEMENT DESCRIPTORS FOR ALL RECORDS IN THE
name SUBSCHEMA WERE SUCCESSFULLY RETRIEVED**

Reason: CA-IDMS/DBX accessed the dictionary and successfully built a description of all records and record elements that are in the named subschema.

Action: None.

**DICT003E PICTURE CLAUSE PROCESSING ERROR FOR THE name FIELD:
picture clause LEN: picture length in hex**

Reason: The dictionary access module could not successfully decode a PICTURE clause for the named field.

Action: Contact Computer Associates Product Support with this message.

**DICT004E SOURCE COULD NOT BE FOUND IN THE DICTIONARY FOR
RECORD name OF SUBSCHEMA name SCHEMA name VERSION nnnn**

Reason: The dictionary access module could not find the source for the named record/subschema in the dictionary being accessed.

Action:

1. Add the source for the subschema to the dictionary being accessed.
2. Add a DICTNAME or DICTNODE parameter to the PROCESS statement to access a dictionary containing the subschema source.

Rerun the job.

E2001 KEYWORD NOT RECOGNIZED - keyword/command/operand

Reason: The keyword, command, and/or operand that was entered has not been defined to GSIRECEL.

Action: There are two possible courses of action:

1. Refer to the appropriate section in this guide for the correct spelling.
2. Enter the corrected command operand, and/or keyword, then press the ENTER key.

E2002 OPERAND MUST BE NUMERIC LITERAL

Reason: A non-numeric operand was entered with the LINE command.

Action: Enter a numeric value and press the ENTER key.

E2005 RECORD NOT IN SUBSCHEMA

Reason: The record-name specified in an INITIALIZE command is invalid.

Action: Correct the INIT and reissue the command.

E2019 FORMAT ERROR(S)

Reason: A format error(s) occurred when processing new or modified data was entered. The field entered was in the wrong format (that is, more than one decimal point entered in a numeric field. '1.2.3').

Action:

1. Enter the 'SET field-name NATIVE' command to determine the correct usage mode for the field.
2. Correct and reenter the data.

E2027 LOGICAL DATA WIDTH MUST BE NUMERIC

Reason: The value that was entered for the logical data width was entered as a non-numeric value.

Action: Reenter the field as a numeric value. (This value must be from 80 to 264.)

E2033 INVALID DISPLAY OPTION

Reason: The operand entered on the DISPLAY command has not been defined to GSIRECEL.

Action: There are two possible courses of action:

- Validate the operand on the DISPLAY command.
- Correct the operand and reenter the command.

E2034 CONTINUE ONLY VALID FOR THE LAST

Reason: The CONTINUE operand on the DISPLAY command can only be used if a second screen is waiting to be viewed. (See the GSIRECEL online help facility for more details on the DISPLAY CONTINUE command.)

Action: Delete CONTINUE operand and reenter the command.

E2038 LOGICAL DATA WIDTH IS OUT OF RANGE

Reason: The Logical Data Width entered is either less than 80 or greater than 264. A value outside of this range is not permitted.

Action: Enter a value between 80 and 264 as specified on the sign-on screen.

E2050 PA KEY/PF KEY NOT RECOGNIZED

Reason: The value entered on Sign-on screen for the INTERRUPT key is not one of the supported keys. Valid values are PA1, PA2, PA3, and PF1 through PF24.

Action: Change the value after the interrupt field on the Sign-on screen to one of the supported keys and reenter.

E5101 UNKNOWN COMMAND

Reason: An unknown command was entered in the GSIRECEL command line.

Action: Enter another command, or request HELP for information regarding valid commands.

E5512 COMMAND NOT ALLOWED AT THIS POINT

Reason: You entered a command that is not allowed at this point in the session.

Action: Remove the error command.

E5526 LOGICAL DATA WIDTH MUST BE NUMERIC AND 80-255

Reason: You entered an invalid data width (screen width).

Action: Correct the data width and retry.

F0100 TERMINAL READ/WRITE ERROR

Reason: The terminal read or write routine has issued a return code greater than zero to GSIRECEL. A possible line or terminal error has occurred.

Action: Re-invoke GSIRECEL, and try again. If the problem recurs, contact Computer Associates Product Support.

F0102 INTERNAL SCAN ERROR ON INPUT DATA

Reason: The 3270 scan routine cannot locate the end-of-record marker for the data string that was entered.

Action: Re-invoke GSIRECEL, and try again. If the problem recurs, contact Computer Associates Product Support.

F0103 TEMPORARY STORAGE ACQUIRE ERROR

Reason: One of the following caused this message:

1. A non-zero return code was returned from CICS/VS temporary storage, or
2. An ID error was encountered.

Action: Re-invoke GSIRECEL, and try again. If the problem recurs, contact Computer Associates Product Support.

F0108 DUPLICATE HASH ENTRY

Reason: GSIRECEL located a duplicate area or record name in the internal table.

Action: Contact Computer Associates Product Support.

F0118 RECORD HAS NO FIELDS

Reason: A request was entered to process a record that did not have any elements defined.

Action: Verify the record description in the subschema; if elements do exist, contact Computer Associates Product Support.

F025S 2 DLENGTH DATA INCORRECT (SHORT)

Reason: The record length defined in the SSR-032 record is less than the actual record length. This is due to an invalid record length calculation for records containing BIT fields.

Action: Re-invoke GSIRECEL and bypass binding any records with BIT fields. GSIRECEL cannot access these records.

F1002 PUSH STACK OVERFLOW

Reason: GSIRECEL received a non-zero return code from the storage routine.

Action: Allocate more storage to GSIRECEL. If the problem recurs, contact Computer Associates Product Support.

F1003 ENTER STACK OVERFLOW

Reason: GSIRECEL received a non-zero return code from the storage routine.

Action: Allocate more storage to GSIRECEL. If the problem recurs, contact Computer Associates Product Support.

F1718 INVALID USAGE FOR DEPENDS ON FIELD

Reason: A record with an occurs depending on group has an object field whose usage mode is not numeric.

Action: Verify the record. If the field is defined as numeric, contact Computer Associates Product Support.

F1719 INVALID USAGE FOR SUBSCRIPTED FIELD

Reason: The usage mode for a subscripted field must be filler, hexadecimal, or picture X.

Action: Contact Computer Associates Product Support.

F1938 PACKED FIELD GREATER THAN 16 BYTES

Reason: GSIRECEL encountered a field with a usage mode of packed decimal and a length greater than 16 bytes.

Action: Contact Computer Associates Product Support.

F2005 OBTAIN FOR SS-026 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SS-026' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2006 OBTAIN FOR SSR-032 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SSR-032' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2007 OBTAIN FOR SSOR-034 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SSOR-034' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2008 OBTAIN FOR SR-036 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SR-036' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2009 OBTAIN FOR SDR-042 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SDR-042' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2012 OBTAIN FOR PROG-051 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'PROG-051' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.

2. Re-invoke GSIRECEL.

F2014 OBTAIN FOR RCDSYN-079 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'RCDSYN-079' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2015 OBTAIN FOR NAMESYN-083 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'NAMESYN-083' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2016 OBTAIN FOR SRCD-113 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SRCD-113' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2020 INVALID FIELD BLOCK CHAIN POINTER

Reason: An error has occurred within GSIRECEL.

Action: Contact Computer Associates Product Support.

F2023 INVALID PICTURE FOR FIELD

Reason: The field name and picture clause that follow the message are invalid or not supported with the current release.

Action: If the picture is invalid, correct the source.

F2024 BIT FIELD LENGTH TOO LONG FOR DISPLAY

Reason: The requested bit field has exceeded your logical data width display area. (You defined this area when you signed on to GSIRECEL. For more information on logical data width refer to the GSIRECEL online help facility.)

Action:

1. Re-invoke GSIRECEL.
2. Supply GSIRECEL with a number in the logical data width field to accommodate the length of the bit field you need to display.

F2026 SESSION STORAGE UNAVAILABLE

Reason: Request for storage returned a 'NOT AVAILABLE' condition.

1. The subschema being accessed requires more session storage than was available.
2. System load may be too high.
3. Dynamic storage pool defined in the TP environment may be too small.

Action:

1. Use a smaller subschema.
2. Wait until the system load decreases.
3. Increase TP environment dynamic storage pool. (For example, in CA-IDMS/DC, increase STORAGE POOL SIZE; in CICS, increase DYNAMIC STORAGE POOL.)

F2027 PROGRAM LOAD FAILURE

Reason: A module required by GSIRECEL could not be loaded.

Action: Verify that USDMAIN, USDDRCT, USDERRS, and (USDVMFS, if you are running under CMS) are located in the library used for the GSIRECEL environment.

F2028 OBTAIN FOR SSMR-068 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SSMR-068' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.
2. Re-invoke GSIRECEL.

F2029 OBTAIN FOR SSCR-070 FAILED

Reason: A non-zero status was returned while CA-IDMS was accessing the dictionary record 'SSCR-070' that relates to your subschema.

Action:

1. Correct the cause for the CA-IDMS status code. The code is displayed on the screen.

2. Re-invoke GSIRECEL.

F2031 INTERNAL ERROR, MISSING SET HTE

Reason: GSIRECEL could not find a set control block.

Action: Contact Computer Associates Product Support.

F7702 LINK FOR GSIHELP FAILED

Reason: GSIHELP could not be LINKed to.

Action: Ensure that the installation instructions appropriate for your TP monitor have been followed.

F9800 INTERNAL ERROR IN HASH LOGIC

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9990 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9991 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9992 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9993 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9994 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9995 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9996 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9997 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9998 INTERNAL ERROR

Reason: Internal error.

Action: Call Computer Associates Product Support.

F9999 INTERNAL ERROR VALUE TOO LARGE

Reason: An error has occurred within GSIRECEL.

Action: Contact Computer Associates Product Support.

**FILE905E GSSFILE RETURNED AN ERROR DURING function, FILE=name,
CODES n1,n2,n3,n4**

Reason: The indicated file function could not be performed with the specified file.

Action: See Exhibit 6.1 to determine the reason the error occurred and the appropriate action. If you receive a return code combination of 0,24,0,8, contact Computer Associates Product Support.

Two types of errors can be reported by the return codes of n1, n2, n3, and n4--non-VSAM file errors and VSAM file errors. The error is described by n2 and n4. For VSAM file errors, n4 is always equal to 28. The error is described by n1, n2, and n3. A general return code is given by n4 for both non-VSAM and VSAM errors. All return codes are decimal values.

n4	Reason	Action
4	End-of-file	Call Computer Associates Product Support.
8	Open error or file is not open	Look for JCL errors or for the use of improper files.
12	An I/O error has occurred	Find cause for I/O error.
16	Request not recognized	Call Computer Associates Product Support.
20	File was already opened	Call Computer Associates Product Support.
24	Parameter list error	Call Computer Associates Product Support.
28	VSAM error n1=R15 return code from VSAM n2=low order byte from R0 GENCB/MODCB type of error n3=VSAM feedback byte error in I/O request	Use n1, n2, and n3 to check for possible user errors. If there are no user errors, call Computer Associates Product Support.
32	Insufficient storage	Increase storage for job step.
36	SYNAD error occurred n1=byte 1 of DECB n1=byte 2 of DECB n1=byte 3 of DECB	Call Computer Associates Product Support.
40	BPAM FIND error n1=R15 n2=R0	Use n1 and n2 (as described in Data Management Macro Instructions) to check for errors.
44	BPAM STOW error n1=R15 n2=0	Use n1 and n2 (as described in Data Management Macro Instructions) to check for errors.
n2	Reason	Action
0	n4=8, use of unopened file n4=24, parameter list error	Call Computer Associates Product Support. Call Computer Associates Product Support.

n4	Reason	Action
1	JCL/label overrode parm list	Remove DCB information from JCL and ensure that the correct files are referenced.
2	Parm list overrode JCL/label	Remove DCB information from JCL and ensure that the correct files are referenced.
3	Unrecognized request	Call Computer Associates Product Support.
4	OS x13 ABEND trapped at open	Fix cause for x13 ABEND.
5	Tried to update seq. file	Call Computer Associates Product Support.
6	VSAM write at other than load	Call Computer Associates Product Support.
7	SOS table could not expand	Call Computer Associates Product Support.
8	OS DCB open failed	Call Computer Associates Product Support.
9	SOS table buffer pointer lost	Call Computer Associates Product Support.
10	SOS table file CB not built	Call Computer Associates Product Support.
11	OS DD statement Missing	Supply missing DD statement.
12	VSAM ACB open failed	Call Computer Associates Product Support.
13	Record format invalid	Call Computer Associates Product Support.
14	Macro format invalid	Call Computer Associates Product Support.
15	Record length not numeric	Call Computer Associates Product Support.
16	Record length too large	Call Computer Associates Product Support.
17	Block size not numeric	Call Computer Associates Product Support.
18	Block size too large	Call Computer Associates Product Support.

n4	Reason	Action
19	Invalid DOS sysname table	Assemble a valid sysname table.
20	DOS sysname table entry missing	Assemble a sysname table with an entry for the missing one.
21	DOS LU number too large	Use an LU number within range.
22	DOS sysname is not numeric or is misspelled	Correct to a valid sysname.
23	DOS sysname blank	Do not use blank sysname.
24	DOS LU not assigned	Call Computer Associates Product Support.
25	DOS DTF prototype missing	Call Computer Associates Product Support.
26	DOS logic module missing	Generate missing logic module.
27	DOS CCW mismatch	Call Computer Associates Product Support.
28	File is not a PDS	Allocate file to a PDS.

Exhibit 6.1: Return Codes

GSCK000W USER RECORD NOT FOUND user-id

Reason: No user ID was entered.

Action: Enter correct user ID.

GSCK001E DATABASE ERROR STATUS idms-status-code

Reason: An unexpected status code was returned from a CA-IDMS call.

Action: Check the status code for appropriate action.

GSCK002E ENTITY REC NOT FOUND entity-calc-key

Reason: Internal error.

Action: Contact Computer Associates Product Support.

GSCK003E AUTH. CODE NOT DEFINED invalid-request

Reason: Internal error.

Action: Contact Computer Associates Product Support.

GSCK004E SET NOT FOUND set-name

Reason: Internal error.

Action: Contact Computer Associates Product Support.

GSCK005E ENTITY TYPE NOT FOUND entity-type

Reason: Internal error.

Action: Contact Computer Associates Product Support.

GSCK999E UNDEFINED ERROR

Reason: Internal error.

Action: Contact Computer Associates Product Support.

I2001 FIELD RESET TO USAGE MODE LENGTH nnn BYTES, LEVEL nn

Reason: The field-name was previously changed to hexadecimal usage mode. This message is returned after the field has been reset to its native mode by using the 'SET field-name NATIVE' command.

Action: None. This message is informative only.

I2002 USAGE CHANGED

Reason: The field or record in the 'SET field-name HEX' command was changed to hexadecimal usage mode.

Action: None. This message is informative only.

I5001 AUTOHEX MODE NOW on/off

Reason: The SET command for this option was processed.

Action: None.

I5002 COBOL DISPLAY MODE NOW on/off

Reason: The SET command for this option was processed.

Action: None.

I5003 COMMAND DISPLAY WILL BE as input / as used

Reason: The SET command for this option was processed.

Action: None.

I5004 LOWER CASE OPTION NOW on/off

Reason: The SET command for this option was processed.

Action: None.

IDMS001E A DML ERROR HAS OCCURRED - DIAGNOSTICS FOLLOW ...

Reason: An unexpected CA-IDMS status error occurred during database processing. Diagnostic messages follow this message.

Action: See the *CA-IDMS Codes and Messages* manual for the status indicated. Correct the situation as necessary.

INIT001E MODULE name COULD NOT BE LOADED; RC=code: reason

Reason: The named module could not be loaded and processing could not continue for the indicated reason.

Action: If RC (return code) equals:

- **004** — Make sure the named module was link edited into the load/core image library(ies) being used.
- **008** — Increase the amount of storage for the job step. If the module name is USVTPARM, refer to Chapter 5, “Operations.”
- Other than **004** or **008** — Contact Computer Associates Product Support.

LOAD001I LOAD STEP STARTED ... date time

Reason: The date and time the LOAD step started are displayed.

Action: None.

LOAD002I LOAD STEP ENDED ... date time

Reason: The date and time the LOAD step ended are displayed.

Action: None.

LOAD003E INVALID EXTRACT FILE - EXTRACT type RECORD WAS NOT FOUND OR IS INVALID

Reason:

1. The EXTRACT step that created the Extract File was cancelled before the indicated extract record was written.
2. The file being read is not a CA-IDMS/DBX Extract File.

-
3. The Extract File was created by a release of the Database Extract Component incompatible with the current release of the load component.

Action:

1. Run the EXTRACT step to successful completion.
2. Resubmit the job using a valid Extract File.
3. Rerun both the EXTRACT and LOAD steps using the same release of CA-IDMS/DBX.

LOAD004E SUBSCHEMA record/set name WAS NOT FOUND IN THE TARGET SUBSCHEMA

Reason: The source subschema contained the indicated record or set. The record or set cannot be found in the current target subschema. Any record or set defined in the source subschema must also be defined in the target subschema.

1. An invalid version of the target subschema is being used.
2. The target subschema was modified after the Selection Criteria Specification was created.

Action:

1. Allocate the dictionary or load/core image library which contains the correct version of the target subschema.
2. Add the indicated record or set to the target subschema, recompile the subschema, and resubmit the job. Recreate the Selection Criteria Specification using the current version of the target subschema.

LOAD005E INVALID EXTRACT FILE - MULTIPLE header/trailer RECORDS DETECTED

Reason: Extract Files from multiple CA-IDMS/DBX jobs were concatenated.

Action: Rerun the LOAD step, using a single Extract File.

LOAD006I extracted/loading USING SUBSCHEMA name; COMPILED date time; DMCL name; DBNAME name

Reason: The subschema and associated schema for the EXTRACT or LOAD step are displayed.

Action: None.

LOAD007I INITIATING RECORD BINDS

Reason: CA-IDMS/DBX prepares to bind all records that are to be loaded.

Action: None.

LOAD008I INITIATING READIES

Reason: CA-IDMS/DBX prepares to ready all areas participating in the load process. Each area is readied in SHARED UPDATE. The name of each readied area follows this message.

Action: None.

LOAD009I STORE STEP STARTED ... date time

Reason: The date and time the STORE step started are displayed.

Action: None.

LOAD010I STORE STEP ENDED ... date time

Reason: The date and time the STORE step ended are displayed.

Action: None.

LOAD011I STORE STEP STATISTICS ...

Reason: Statistics for the STORE step follow this message.

Action: None.

LOAD012I CONNECT STEP STARTED ... date time

Reason: The date and time the CONNECT step started are displayed.

Action: None.

LOAD013I CONNECT STEP ENDED ... date time

Reason: The date and time the CONNECT step ended are displayed.

Action: None.

LOAD014I CONNECT STEP STATISTICS ...

Reason: Statistics for the CONNECT step follow this message.

Action: None.

LOAD015E SHORT ON STORAGE...number BYTES REQUESTED

Reason: The number of bytes required for executing the LOAD step was not available in the region/partition.

Action: Increase the region/partition size and resubmit the job. See Chapter 5, “Operations” for information about CA-IDMS/DBX storage requirements.

NKWP008E xxxx MUST CONTAIN NO MORE THAN nnn VALUES

Reason: Too many values were supplied for keyword xxx.

Action: Correct the keyword in error and resubmit the job.

NKWP009E VALUE MUST BE variable-text

Reason: *variable-text* explains the error situation.

Action: Correct the statement in error and resubmit the job.

NKWP014E NO MORE THAN nnn OF THESE KEYWORDS MAY BE SPECIFIED: - keyword-list

Reason: Too many keywords were selected from the variable list.

Action: Correct the statement in error and resubmit the job.

NKWP016E AT LEAST nnn OF THESE KEYWORDS MUST BE SPECIFIED: - keyword-list

Reason: Too few keywords were selected from the variable list.

Action: Correct the statement in error and resubmit the job.

NKWP025E xxx MUST CONTAIN AT LEAST nnn VALUES

Reason: Too few values were supplied for keyword xxx.

Action: Correct the keyword in error and resubmit the job.

NKWP027E xxx MUST CONTAIN NO MORE THAN nnn VALUES

Reason: Too many values were supplied for keyword xxx.

Action: Correct the keyword in error and resubmit the job.

NKWP051E ERROR OCCURRED DURING CAN OF xxxxxxxx - GSSCALL RETURN CODE IS nn

Reason: An error occurred during a call to the module. Possible return codes, with their meanings, are:

- **04** — internal parameter error
- **08** — module not found in STEPLIB or in the core image library

-
- 12 — insufficient GETVIS to load the module (VSE/ESA only)
 - 16 — GSSANKR could not be loaded (internal problem)

Action: Correct the situation and resubmit the job.

**NKWP052E ERROR OCCURRED DURING LOAD OF xxxxxxxx - GSSLOAD
RETURN CODE IS nn**

Reason: An error occurred during a load of the module. Possible return codes, with their meanings, are:

- 04 — module not found in STEPLIB or in the core image library
- 08 — insufficient GETVIS to load the module (VSE/ESA only)
- 12 — Failure in GSSSVHP (VSE/ESA only)

Action: Correct the situation and resubmit the job.

**NKWP053E ERROR OCCURRED DURING WRITE OF xxxxxxxx - GSSPRNT
RETURN CODE IS nn**

Reason: An error occurred during file processing.

Action: Ensure that your JCL contains the proper statements for the file. Correct the situation and rerun the job.

**NKWP064E ERROR OCCURRED DURING OPEN OF xxx FILE - GSSFILE
RETURN CODE IS n1,n2,n3,n4**

Reason: An error occurred during file processing.

Action: See Exhibit 6.1 to determine the reason the error occurred and the appropriate action. If you receive a return code combination of 0,24,0,8, ensure that your VSE/ESA JCL contains an ASSGN statement for the file.

**NKWP066E ERROR OCCURRED DURING CLOSE OF xx FILE - GSSFILE
RETURN CODE IS n1,n2,n3,n4**

Reason: An error occurred during file processing.

Action: See Exhibit 6.1 to determine the reason the error occurred and the appropriate action.

**NLYZ001E THE name record/set WAS FOUND IN THE SOURCE
SUBSCHEMA BUT NOT IN THE TARGET SUBSCHEMA**

Reason: The indicated record or set was found in the source subschema but not in the target subschema. Except for user owned integrated index sets, the source and target subschemas must contain the same record and set names.

Action: Specify source and target subschemas that contain the same record and set names.

NLYZ002E THE name RECORD IS NOT an/a owner/member OF THE name SET IN TARGET SUBSCHEMA

Reason: The named record is either an owner or member of the named set in the source subschema. The set, however, does not have the same owner and members in the target subschema. A record type that is an owner of a set in the source subschema must be the owner of the same set in the target subschema. A record type that is a member of a set in the source subschema must be a member of the same set in the target subschema.

Action: Specify source and target subschemas defining records and sets related in the same manner.

NLYZ003E THE name SET DOES NOT HAVE A SET ORDER OF "NEXT" OR "SORTED" IN TARGET SUBSCHEMA

Reason: The indicated set does not have a set order of NEXT and is not a SORTED set in the target subschema. All sets in the target subschema, except system-owned integrated indexes, must have either a set order of NEXT or SORTED.

Action: Create a transient subschema, as described Chapter 5, "Operations." Resubmit the job.

NLYZ004E THE name RECORD DOES NOT HAVE A SET CONNECT OPTION OF "MANUAL" FOR THE name SET IN TARGET SUBSCHEMA

Reason: The indicated record does not have a CONNECT option of MANUAL for the indicated set. Except for system-owned integrated index sets, member records of all sets in the target subschema must have a set CONNECT option of MANUAL.

Action: Create a transient subschema, as described in Chapter 5, "Operations." Resubmit the job.

NLYZ005E SELECTION CRITERIA FOR THE ENTRY name record/index NOT COMPLETE

Reason: An END command was entered on the Record Level Selection Criteria screen. This action terminated the specification of selection criteria. As a result, the selection criteria specification for the indicated entry record or index is NOT complete.

Action: Use the CA-IDMS/DBX online Selection Criteria Specific Component to complete the selection criteria for the indicated entry record/index. Resubmit the job.

NLYZ006E THE SPECIFICATION IS INCOMPLETE - YOU MUST SPECIFY RECORD LEVEL SELECTION CRITERIA FOR THE FOLLOWING RECORDS/SETS:

Reason: You are attempting to use a Selection Criteria Specification that is not complete. There are records and sets selected in a path for which record level selection criteria have not been specified. All selected records and sets must have record level selection criteria in order for the specification to be valid. The names of the records/sets that do not have record level selection criteria follow this message.

Action: Use the CA-IDMS/DBX online Selection Criteria Specification Component to specify record level selection criteria for all the indicated records and sets. Resubmit the job.

NLYZ007E DATA LENGTHS FOR THE name RECORD NOT THE SAME IN BOTH SUBSCHEMAS

Reason: The indicated record does not have the same data length in both the source and target subschemas.

Action: Specify source and target subschemas that contain record types having the same data lengths. Resubmit the job.

NLYZ008W AUTOMATIC MEMBER member-name OF THE NLYZ008E name SET IS BEING EXTRACTED; THE OWNER RECORD IS NOT

Reason: The indicated record is being extracted because it participates in a set that was included in a path definition. The record, however, also participates as an AUTOMATIC member of the named set, which was not included in any path. These records, when loaded to the target database, become orphans of the named set.

Action: If you do not want orphan records on the target database, use the CA-IDMS/DBX online Selection Criteria Specification Component to specify, in a path, the set in which the record participates as an AUTOMATIC member. Resubmit the job.

NLYZ009E THE name RECORD's RECORD LEVEL SELECTION CRITERIA IS OUTSIDE ITS FROM/THRU PAGE RANGE(from-page/thru-page):

Reason: The indicated record's Record Level Selection Criteria following this message contains page numbers that fall outside of the record's from/thru page range for the current dbname/segment. The most likely cause of this error is that the specification was created with a different dbname/segment than the one you are attempting to use with the extract component.

Action:

1. Specify a dbname/segment on the SYSIDMS file that contains the proper page range for all records in the specification.
2. Use the CA-IDMS/DBX online Selection Criteria Specification Component to modify the page numbers in the specification.

Resubmit the job.

PARM001E THE PROCESS PARAMETER STATEMENT MUST BE THE FIRST STATEMENT ENTERED

Reason:

1. The first statement in the input stream was not a PROCESS statement.
2. The PROCESS keyword is misspelled.

Action:

1. Correct the input stream so the first statement is a PROCESS statement and resubmit the job.
2. Correct the spelling of the PROCESS keyword and resubmit the job.

PARM002I NO PARAMETER ERRORS DETECTED

Reason: A complete parameter statement was processed and no parameter errors were detected.

Action: None.

PARM003E DUPLICATE MAJOR KEYWORD DETECTED: keyword

Reason: More than one occurrence of the indicated parameter statement was encountered.

Action: Delete all but one occurrence of the parameter statement and resubmit the job.

PARM004E THE REST OF THE PARAMETER STATEMENTS ARE FLUSHED

Reason: A previous error has made execution of CA-IDMS/DBX impossible. All remaining parameter statements are displayed but NOT processed.

Action: Review the associated error messages. Correct the errors and resubmit the job.

PCCX001I CONVERT STEP STARTED ... date time

Reason: The date and time the PC convert extract step started are displayed.

Action: None.

PCCX002I CONVERT STEP ENDED ... date time

Reason: The date and time the PC convert extract step ended are displayed.

Action: None.

PCCX003I EXTRACT STATISTICS. . .

Reason: Statistics for the PC convert extract step follow this message.

Action: None.

PCCX004E SHORT ON STORAGE...number BYTES REQUESTED

Reason: The number of bytes required for executing the PC convert extract step was not available in the region/partition.

Action: Increase the region/partition size and resubmit the job. See Chapter 5, "Operations" for information about CA-IDMS/DBX storage requirements.

PCCX005E INVALID EXTRACT FILE - EXTRACT type RECORD WAS NOT FOUND OR IS INVALID

Reason:

1. The EXTRACT step that created the Extract File was cancelled before the header extract record was written.
2. The file being read is not a CA-IDMS/DBX Extract File.
3. The Extract File was created by a release of the extract component incompatible with the current release of the PC convert extract component.

Action:

1. Run the EXTRACT step to successful completion.
2. Resubmit the job using a valid Extract File.
3. Rerun both the EXTRACT and PC convert extract steps using the same release of CA-IDMS/DBX.

PCCX006E INVALID EXTRACT FILE - MULTIPLE header/trailer RECORDS DETECTED

Reason: Extract Files from multiple CA-IDMS/DBX jobs were concatenated.

Action: Rerun the job using a single Extract File.

PCCX007E SUBSCHEMA record/set name WAS NOT FOUND IN THE TARGET SUBSCHEMA

Reason: The source subschema contained the indicated record or set. However, the record or set cannot be found in the current target subschema. Any record or set defined in the source subschema must also be defined in the target subschema.

1. An invalid version of the target subschema is being used.
2. The target subschema was modified after the Selection Criteria Specification was created.

Action:

1. Allocate the dictionary or load/core image library which contains the correct version of the target subschema.
2. Add the indicated record or set to the target subschema, recompile the subschema, and resubmit the job.
3. Recreate the Selection Criteria Specification using the current version of the target subschema.

PCCX008I EXTRACTED USING SUBSCHEMA name; COMPILED date time; SCHEMA name; VERSION nnnn; LOCAL DMCL name

Reason: The subschema and associated schema for the extract step are displayed.

Action: None.

PCCX009E USEREXIT name COULD NOT BE LOADED; RC=code: reason

Reason: The named user exit module could not be loaded and processing could not continue for the indicated reason.

Action: If RC equals:

1. **004** — Make sure the named module was link edited into the load/core image library(ies) being used.
2. **008** — Increase the amount of storage for the job step. If the module name is USVTPARM, see the *CA-IDMS installation guides* for more information.
3. Other than **4** or **8** — Contact Computer Associates Product Support with this message.

PCCX010I USEREXIT name WAS SUCCESSFULLY LOADED

Reason: The named user exit module was loaded into storage by CA-IDMS/DBX and will be called prior to each extract record's being written to the XTRCSOUT file.

Action: None.

PJCL001E INPUT USER-ID NOT FOUND ON THE DBX DATABASE: user-id

Reason:

1. The named user ID was not found on the CA-IDMS/DBX database.
2. The EXTRACT step accessed an incorrect CA-IDMS/DBX database.

Action:

1. Enter a valid user ID and resubmit the job.
2. Revise the JCL to access the correct CA-IDMS/DBX database. Resubmit the job.

PJCL002E JCL MEMBER name NOT FOUND ON THE DBX DATABASE FOR USER-ID user-id

Reason:

1. The indicated JCL member name was not found on the CA-IDMS/DBX database for the indicated user ID.
2. The EXTRACT step accessed an incorrect CA-IDMS/DBX database.

Action:

1. Verify that the correct user ID was specified. Correct the JCL member name or user ID and resubmit the job.
2. Revise the JCL to access the correct CA-IDMS/DBX database. Resubmit the job.

PSUB001E source/target DMCL NOT FOUND

Reason: The indicated DMCL could not be found in the load/core image library allocated to the CA-IDMS/DBX job.

Action: Check that the correct DMCL was specified on the SYSIDMS file and that the correct load/core image library was allocated. Correct the situation as necessary. Resubmit the job.

PSUB002E INVALID source/target SUBSCHEMA name AND/OR DBNAME name

Reason:

1. The subschema could not be found in the dictionary or load/core image library allocated to the CA-IDMS/DBX job.
2. The indicated dbname could not be found in the DB table or is not a valid segment in the DMCL being used.

Action:

1. Check that the correct SYSCTL, dictionary, and/or load/core image library was allocated. Correct the situation as necessary.
2. Enter a valid dbname or segment as the SYSIDMS file.

Resubmit the job.

PSUB003I source/target PSUB STORAGE REQUIRED ... nnnn BYTES

Reason: The amount of storage required to create the indicated pseudo subschema table is displayed.

Action: None.

PSUB004E ERROR BUILDING THE source/target PSEUDO SUBSCHEMA (name) - diagnostics

Reason: CA-IDMS/DBX encountered an unrecoverable error while building the indicated subschema table.

Action: Contact Computer Associates Product Support with this message.

RETS001I THE SPECIFICATION WAS SUCCESSFULLY RETRIEVED

Reason: CA-IDMS/DBX successfully retrieved the Selection Criteria Specification from the CA-IDMS/DBX database.

Action: None.

RETS002E THE CLUSTER RECORD WAS NOT FOUND: system id/user id

Reason:

1. The CLUSTER record for the indicated user ID was not found on the CA-IDMS/DBX database.
2. The EXTRACT step accessed an incorrect CA-IDMS/DBX database.

Action:

1. Enter a valid user ID and resubmit the job.
2. Revise the JCL to access the correct CA-IDMS/DBX database. Resubmit the job.

RETS003E THE CRITERIA RECORD WAS NOT FOUND: specification name

Reason:

1. The CRITERIA record for the indicated Selection Criteria Specification was not found on the CA-IDMS/DBX database.
2. The EXTRACT step accessed an incorrect CA-IDMS/DBX database.

Action:

1. Ensure that the correct user ID was entered. Correct the Selection Criteria Specification name or user ID as necessary. Resubmit the job.
2. Revise the JCL to access the correct CA-IDMS/DBX database. Resubmit the job.

RETS004E SPEC name WAS SAVED BY A RELEASE OF THE SYSTEM (release) NOT COMPATIBLE WITH THE CURRENT RELEASE

Reason: You are attempting to use a release of CA-IDMS/DBX that is not compatible with the indicated prior release.

Action: Ensure that you have successfully preformed the conversion process when moving from one release of CA-IDMS/DBX to a more recent release. See Appendix B, "Converting to CA-IDMS/DBX Release 15.0" on page B-1. Do not

attempt to go from a recent release to an older release. Correct the situation as necessary. Resubmit the job.

RETS005I RETRIEVING SUBSCHEMA name; USING DICTNAME name; DICTNODE name; DBNAME name; DBNODE name; DMCL name

Reason: CA-IDMS/DBX is attempting to retrieve the indicated subschema.

Action: None.

RETS006E record/set/mbrset/area name NOT FOUND IN THE SUBSCHEMA

Reason: CA-IDMS/DBX retrieved a specification from its database and was attempting to update the subschema with the Record Level Selection Criteria for the named item. The record, set, or area could not be found, however. The most likely cause of this error is that the subschema used to create the specification was modified after the specification was saved. The named record, set, or area was deleted from the subschema. You cannot use the specification if the subschema no longer contains records, sets, or areas referenced in any path in the specification.

Action: Delete the specification and recreate it using the updated subschema.

SPRS001E A REQUEST OF "request-code" WAS PASSED TO GSISPRS

Reason: "request-code" is an invalid value for the online job submission program. This is a problem internal to the system from which online job submission was requested.

Action: Make note of the request code and the screen from which you attempted to submit the job, then notify the Computer Associates Product Support group responsible for this product.

SPRS002E AN INVALID REQUEST SEQUENCE WAS ENCOUNTERED IN GSISPRS

Reason: The online job submission program expects to be invoked iteratively with request codes in a particular sequence. On this occasion, this sequence has been violated. This is a problem internal to the system from which online job submission was requested.

Action: Make note of the screen from which you attempted to submit the job, then notify the Computer Associates Product Support group responsible for this product.

SPRS003E THE GET OF (USER, LONG) STORAGE FAILED WHEN IN GSISPRS

Reason: The online job submission program requires an USER, LONG storage in 400-byte blocks for the duration of the submit process. A #GETSTG for this amount of storage has failed.

Action: This situation is likely to be temporary. Reissue the submit request. If the problem persists, notify your Database Administrator (DBA) of this situation so that sufficient storage can be made available for this request.

SPRS004E NOTHING SUBMITTED

Reason: The JCL member being submitted appears to be empty.

Action: Ensure that the submit function is chosen appropriately. Correct as necessary and retry.

SPRS005E AN INVALID OPERATING SYSTEM OF "operating-system" WAS PASSED TO GSISPRS

Reason: The online job submission facility encountered the indicated operating-system abbreviation.

Acceptable abbreviations must begin with OS/390, SVS, VS1, CMS, or DOS. The operating system has been determined by accessing the OPSYS field of the CSA (CA-IDMS/DC Common System Area).

Action: If your operating system can reasonably be identified by one of those listed above, notify your Database Administrator (DBA) of this situation so that CSAOPSYS can be updated. Otherwise, notify the Computer Associates Product Support group responsible for this product of your unsupported operating system.

SPRS006E SUBMIT RESOURCES TEMPORARILY UNAVAILABLE. RETRY

Reason: The online job submission facility allows only one SUBMIT request to be in process at a time. Another user is currently SUBMITting.

Action: This situation is likely to be temporary. Reissue the submit request. If the problem persists, notify your Database Administrator (DBA) of this situation.

SPRS007E operating-system ALLOCATE INTRDR FAILED RC=return-code ERR CDE=error-reason-code INFO CDE=information-reason-code

Reason: The online job submission facility was unable to dynamically allocate a dataset for the internal reader. Variable information in the message depends on the operating system being used. (ERR CDE and INFO CDE will only be present for OS/390 or SVS. See the IBM manual *System Programming Library: Job Management*, topic SVC 99.)

Action: This situation may be temporary. Reissue the submit request. If the problem persists, make note of all information in the message and notify your Database Administrator (DBA) of the situation.

SPRS008E XPCC IDENT/CONNECT FAILED. ID CDE=identification-code ERR CDE=error-reason-code INFO CDE=information-reason-code

Reason: The online job submission facility received an unsuccessful return code from VSE macro XPCC invoking the IDENTIFY or CONNECT function. The ID CDE indicates which macro call and situation occurred. Further information can be determined from the ERR CDE and INFO CDE values. See the *IBM-VSE Power Application Programming* manual for further details.

Action: This situation may be temporary. Re-issue the submit request. If the problem persists, make note of all information in the message and notify your DBA of the situation.

SPRS009E XPCC DISCONN/TERMIN FAILED. ID CDE=identification-code

Reason: The online job submission facility received an unsuccessful return code from VSE macro XPCC invoking the DISCONNECT or TERMINATE function. The ID CDE indicates which macro call and situation occurred.

Action: This situation can only occur after the JCL has successfully been submitted. If the problem persists, make note of all information in the message and notify your DBA of the situation.

SPRS010E XPCC PUT FAILED. ERR CDE=error-code INFO CDE=information-reason-code

Reason: The online job submission facility received an unsuccessful return code from VSE macro XPCC invoking the SENDR function. Further information can be determined from the ERR CDE and the INFO CDE values. See the *IBM-VSE Power Application Programming* manual for further details.

Action: This situation may be temporary. Re-issue the submit request. If the problem persists, make note of all information in the message and notify your DBA of the situation.

STAT001I IDMS STATISTICS FOLLOW . . .

Reason: CA-IDMS/DBX displays CA-IDMS statistics following this message.

Action: None.

SUBZ001I SUBSCHEMA ZAP UTILITY STARTED

Reason: The job step to create the transient subschema has begun.

Action: None.

SUBZ008I SUBSCHEMA ZAP UTILITY ENDED, CC=condition-code

Reason: The subschema zap utility has ended based upon the reason given in the condition code.

Action: Possible condition codes include:

0Normal completion with no errors detected.

4Normal completion but warning messages were issued.

8A parameter input error has been detected. The output is unusable.

16A fatal or internal error has been detected. The output is unusable.

SUBZ010E GSSFILE RETURNED AN ERROR DURING file-function WITH FILE file-name, RETURN CODES ARE n1,n2,n3,n4

Reason: The indicated file function could not be performed with the specified file.

Action: See Exhibit 6.1 for an explanation of specific codes with appropriate actions.

SUBZ012E SUBSCHEMA INPUT FILE EMPTY

Reason: No subschema was found in the input file.

Action: Place the subschema to be changed in the INPUT file and resubmit the job.

SUBZ013E SUBSCHEMA INPUT FILE DOES NOT CONTAIN ANY TXT STATEMENTS

Reason: The subschema in the INPUT file is in the wrong format. The subschema zap utility can only process subschemas in the object format (that is, ESD, TXT, or END).

Action: Place the correct format of the subschema in the INPUT file and resubmit.

SUBZ014E INTERNAL ERROR program-name - xxxxxxxxxxxxxxx

Reason: An internal program error has been detected where xxxxxxxxxxxxxxx is an error-specific message.

Action: Call Computer Associates Product Support and tell them the message number indicated in the message.

SUBZ015E SOURCE TEXT NOT A SUBSCHEMA - PROCESSING TERMINATED

Reason: The object code in the INPUT file is not a subschema.

Action: Place a subschema object deck in the INPUT file and resubmit the job.

SUBZ020E OUTPUT SUBSCHEMA MODULE INVALID DUE TO INPUT ERRORS. DO NOT USE THIS MODULE FOR ANY PROCESSING

Reason: A previous error has occurred, causing the output module to be invalid or incomplete.

Action: Correct all other errors and resubmit the job.

SUBZ021E INPUT MODULE TXT RECORDS OUT OF ORDER. JOB ABORTED

Reason: The text records in the input module are out of order.

Action: Correct the format of the subschema in the input file and resubmit the job.

SUBZ022E INPUT MODULE LENGTH DOES NOT EQUAL OUTPUT MODULE LENGTH

Reason: The length of the output module does not equal the length of the input module.

Action: Correct all other errors and resubmit the job. If the message appears again, contact Computer Associates Product Support.

SUBZ023E FIRST INPUT TXT RECORD DOES NOT HAVE ZERO DISPLACEMENT. INVALID INPUT

Reason:

1. The displacement of the first TXT record is not set to zero.
2. The input module is out of order or missing a TXT statement.

Action: Correct the format of the subschema in the input file and resubmit the job.

UJCL001I ADMINISTRATOR USER-ID (admin id) ADDED TO DATABASE

Reason: A CLUSTER record for the CA-IDMS/DBX administrator was successfully added to the CA-IDMS/DBX database.

Action: None.

UJCL002W THE name FILE WAS NOT FOUND - JCL MEMBER "admin id/member name" NOT CHANGED

Reason: The indicated file name was not found in the JCL stream. Therefore, the associated JCL member for the CA-IDMS/DBX administrator was not modified.

Action: If you want to update the indicated JCL member, allocate the appropriate file to the indicated file name, add the file to the JCL stream, and resubmit the job.

UJCL003W THE name FILE IS EMPTY - JCL MEMBER "admin id/member name" NOT CHANGED

Reason: The indicated file name did not contain any records. The associated JCL member for the CA-IDMS/DBX administrator on the CA-IDMS/DBX database was not modified.

Action: If you want to update the indicated JCL member, allocate a non-empty file to the indicated file name, add the file to the JCL stream, and resubmit the job.

**UJCL004I JCL MEMBER "admin id/member name" action...nnnn RECORDS
UPLOADED**

Reason: The indicated JCL member was successfully added or modified for the CA-IDMS/DBX administrator.

Action: None.

**UJCL005I THE PROCESS PARAMETER STATEMENT WAS NOT
UPLOADED FROM THE name FILE**

Reason: The upload JCL utility did not copy the PROCESS parameter statement found in the indicated file to the CA-IDMS/DBX database because the online JCL Submission Component creates a PROCESS parameter statement for you.

Action: None.

UNCX001I CONVERT STEP STARTED ... date time

Reason: The date and time the CONVERT step started are displayed.

Action: None.

UNCX002I CONVERT STEP ENDED ... date time

Reason: The date and time the CONVERT step ended are displayed.

Action: None.

**UNCX003E INVALID EXTRACT FILE - EXTRACT type RECORD WAS NOT
FOUND OR IS INVALID**

Reason:

1. The EXTRACT step that created the Extract File was cancelled before the indicated extract record was written.
2. The file being read is not a CA-IDMS/DBX Extract File.
3. The Extract File was not created by Release 15.0 of the CA-IDMS/DBX EXTRACT module.

Action:

1. Rerun the EXTRACT step.

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2. Resubmit the job using a valid Extract File.
 3. Rerun the EXTRACT step using Release 15.0 of CA-IDMS/DBX.

**UNCX004I EXTRACTED USING SUBSCHEMA name; COMPILED date time;
SCHEMA name; VERSION nnnn; LOCAL DMCL name**

Reason: The subschema and associated schema used in the EXTRACT step are displayed.

Action: None.

**UNCX005E SUBSCHEMA record/set name WAS NOT FOUND IN THE
SUBSCHEMA**

Reason: The source subschema contained the indicated record or set. However, the record or set cannot be found in the current subschema. Any record or set defined in the source subschema must also be defined in the subschema used in the conversion.

1. An invalid version of the source subschema is being used.
2. The source subschema was modified after the extraction was performed.

Action:

1. Allocate the dictionary or load/core image library which contains the correct version of the source subschema.
2. Add the indicated record or set to the source subschema, recompile the subschema, and resubmit the job.
3. Rerun the EXTRACT step using the current version of the source subschema.

UNCX006E SHORT ON STORAGE...number BYTES REQUESTED

Reason: The number of bytes required for executing the CONVERT step was not available in the region/partition.

Action: Increase the region/partition size and resubmit the job. See Chapter 5, "Operations" for information about CA-IDMS/DBX storage requirements.

**UNCX007E INVALID EXTRACT FILE - MULTIPLE header/trailer RECORDS
DETECTED**

Reason: Extract Files from multiple CA-IDMS/DBX jobs were concatenated.

Action: Rerun the CONVERT step, using a single Extract File.

UNCX008II CREATE PRIMARY KEY STEP STARTED ... date time

Reason: The date and time the CREATE PRIMARY KEY step started in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX009I CREATE PRIMARY KEY STEP ENDED ... date time

Reason: The date and time the CREATE PRIMARY KEY step ended in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX010I CREATE PRIMARY KEY STEP STATISTICS...

Reason: Statistics for the CREATE PRIMARY KEY step in the convert extracts to UNIX SQL load file job follow this message.

Action: None.

UNCX011I CREATE FOREIGN KEY STEP STARTED...date time

Reason: The date and time the CREATE FOREIGN KEY step started in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX012I CREATE FOREIGN KEY STEP ENDED...date time

Reason: The date and time the CREATE FOREIGN KEY step ended in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX013I CREATE FOREIGN KEY STEP STATISTICS...

Reason: Statistics for the CREATE FOREIGN KEY step in the convert extracts to UNIX SQL load file job follow this message.

Action: None.

UNCX014I CREATE SQL LOAD FILE STEP STARTED...date time

Reason: The date and time the CREATE SQL LOAD FILE step started in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX015I CREATE SQL LOAD FILE STEP ENDED...date time

Reason: The date and time the CREATE SQL LOAD FILE step ended in the convert extracts to UNIX SQL load file job are displayed.

Action: None.

UNCX016I CREATE SQL LOAD FILE STEP STATISTICS...

Reason: Statistics for the CREATE SQL LOAD FILE step in the convert extracts to UNIX SQL load file job follow this message.

Action: None.

UNSQ001I PROCESSING THE SQL TABLE DESCRIPTION FILE

Reason: CA-IDMS/DBX begins processing the information that describes the CA-IDMS tables in the UNIX environment. CA-IDMS/DBX validates that the mainframe and UNIX data are in sync.

Action: None.

**UNSQ002I THE ELEMENT DESCRIPTORS WERE SUCCESSFULLY
UPDATED WITH THE SQL TABLE DESCRIPTION FILE**

Reason: CA-IDMS/DBX successfully updated the mainframe dictionary record and element descriptions with the information created by the CA-IDMS UNIX SQL utility.

Action: None.

UNSQ003E TABLE name NOT FOUND IN HASH TABLE

Reason: The indicated table name, present on the input Table Description File, was not found in the list of table (record) names created from the mainframe dictionary. The mainframe dictionary and CA-IDMS UNIX catalog are not in sync.

Action: Rerun the CA-IDMS UNIX SQL utility that updates the CA-IDMS UNIX catalog with the information from the dictionary for the schema/subschema used in the EXTRACT step. Rerun the CA-IDMS UNIX SQL utility that creates the Table Description File. Rerun this job.

UNSQ004E UNSUPPORTED COLUMN TYPE DETECTED: type

Reason: The indicated column type, present on the input Table Description File, is not supported by this release of the conversion utility.

Action: Contact Computer Associates Product with this message

**UNSQ005E FIELD/COLUMN DATA TYPES DO NOT MATCH FOR THESE
FIELDS:**

Reason: The data types for the record element and SQL column names following this message do not match. The SQL column name is the corresponding name of the dictionary record element in the CA-IDMS UNIX SQL environment. The mainframe dictionary and CA-IDMS UNIX catalog are not in sync.

Action: Rerun the CA-IDMS UNIX SQL utility that updates the CA-IDMS UNIX catalog with the information from the dictionary for the schema/subschema used in the EXTRACT step. Rerun the CA-IDMS UNIX SQL utility that creates the Table Description File. Rerun this job.

UNSQ006E FIELD/COLUMN DATA LENGTHS DO NOT MATCH FOR THESE FIELDS:

Reason: The data lengths for the record element and SQL column names following this message do not match. The SQL column name is the corresponding name of the dictionary record element in the CA-IDMS UNIX SQL environment. The mainframe dictionary and CA-IDMS UNIX catalog are not in sync.

Action: Rerun the CA-IDMS UNIX SQL utility that updates the CA-IDMS UNIX catalog with the information from the dictionary for the schema/subschema used in the EXTRACT step. Rerun the CA-IDMS UNIX SQL utility that creates the Table Description File. Rerun this job.

UNSQ007E EXPECTING AN SQL COLUMN TYPE OF "BINARY" FOR A MULTIPLY-OCCURRING GROUP IDD FIELD; OCCURRENCE:nnnn

Reason: CA-IDMS UNIX SQL handles each occurrence of a multiply occurring dictionary element as a binary column type. The names of the corresponding dictionary record element and SQL column follow this message. The SQL column name is the corresponding name of the dictionary record element in the CA-IDMS UNIX SQL environment. The mainframe dictionary and CA-IDMS UNIX catalog are not in sync.

Action: Rerun the CA-IDMS UNIX SQL utility that updates the CA-IDMS UNIX catalog with the information from the dictionary for the schema/subschema used in the EXTRACT step. Rerun the CA-IDMS UNIX SQL utility that creates the Table Description File. Rerun this job.

UNSQ008E THERE ARE MORE/LESS SQL COLUMNS (nnnn) THAN IDD FIELDS (nnnn) FOR RECORD name

Reason: The CA-IDMS UNIX SQL Table Description File contains more or less column names for the indicated dictionary record. The mainframe dictionary and CA-IDMS UNIX catalog are not in sync.

Action: Rerun the CA-IDMS UNIX SQL utility that updates the CA-IDMS UNIX catalog with the information from the dictionary for the schema/subschema in the EXTRACT step. Rerun the CA-IDMS UNIX SQL utility that creates the Table Description File. Rerun this job.

UNSQ009E SET NAME NOT FOUND IN THE PSUB FOR INTERNAL COLUMN name

Reason: The corresponding subschema set name for the indicated CA-IDMS UNIX SQL internal set name could not be found in the pseudo subschema table. The mainframe dictionary and CA-IDMS UNIX catalog may be out of sync.

Action: Contact Computer Associates Product Support with this message.

UNSQ010E FIELD/COLUMN DATA LENGTHS FOR THE FOLLOWING INTEGER FIELDS ARE NOT SUPPORTED

Reason: The conversion utility supports integer fields with a length of 2 or 4 (halfword or fullword). The indicated element/column is not a halfword or fullword.

Action: Contact Computer Associates Product Support with this message.

UNSQ011E SQL TABLE DEFINITION FILE IS EMPTY OR IS INVALID

Reason: The file input to the conversion utility is:

1. empty (it doesn't contain any records), or
2. not a valid SQL Table Definition File.

Action: In both cases, use a valid SQL Table Definition File as input to the conversion utility and rerun the job.

USXD002E INVALID COMMAND

Reason: An invalid primary command was encountered. The cursor is on the command.

Action: Check the syntax of the command. Correct and reenter the command.

USXD202E INVALID PARAMETER ON COMMAND

Reason: A valid command has been entered with an unrecognizable parameter.

Action: Check the syntax of command parameter. Correct and reenter the parameter.

USXD204E ENTER LOCATE PARAMETER

Reason: A line number was not included as a parameter in the LOCATE command.

Action: Check the syntax of the command. Correct the command (include line number parameter) and reexecute.

USXD206E ONLY A NUMBER, MAX, HALF, CSR, OR PAGE IS ALLOWED

Reason: An illegal option has been used with the LEFT, RIGHT, UP, or DOWN command.

Action: Check the syntax of the parameter. Correct the parameter (you may have included some erroneous characters in the syntax line) and reexecute.

USXD208E ONLY "ON" OR "OFF" IS ALLOWED. "ON" IS THE DEFAULT

Reason: An illegal option has been used with the NULLS command or CAPS command.

Action: Check the syntax of the parameter. Correct the parameter (you may have included some erroneous characters in the syntax line) and reexecute.

USXD210E NO PARAMETER IS ALLOWED ON COMMAND

Reason: A parameter has been included in the syntax of the CANCEL command that excludes parameters.

Action: Check the syntax of the command. Correct the command (delete the parameter) and reexecute.

USXF001I FOUND CHARS "string"

Reason: The string indicated has been found in the text. The cursor is positioned at the beginning of the found string.

Action: None.

USXF003I REP "string" WITH "replacement-string"

Reason: The string indicated has been replaced with the replacement string. The cursor is positioned at the replacement string.

Action: None.

USXF004E MUST ENTER A FIND OR CHANGE COMMAND FIRST

Reason: The RFIND (repeat find) or RCHANGE (repeat change) command was entered without a FIND or a CHANGE command being entered first.

Action: Be sure to enter the FIND command or the CHANGE command before the RFIND command or the RCHANGE command.

USXF005I BOTTOM OF DATA REACHED

Reason: The bottom of the text was reached before the string was found. If you enter an RFIND (repeat find) or an RCHANGE (repeat change) at this time, the editor begins searching for the string at the top of the text.

Action: None.

USXF006E ENCLOSE STRING IN QUOTES

Reason: A single quotation mark was found where a pair is required or embedded blanks were found in the search string.

Action: Check quotation marks, correct, and reenter the command. If a string has embedded blanks, enclose it in quotation marks.

USXF007E INVALID FIND SYNTAX

Reason: The string specified in the FIND command is invalid. If the string has embedded blanks or quotation marks, it may appear to the editor to be more than one string; you can only specify one string in the FIND command.

Action: Check the syntax of the command. If the string has embedded blanks, enclose it in quotation marks. If the string has embedded single quotation marks, enclose it in double quotation marks. If the string has embedded double quotation marks, enclose it in single quotation marks. Then reenter the command.

USXF008E INVALID CHANGE SYNTAX

Reason: A string specified in the CHANGE command is invalid. If one of the strings has embedded blanks or quotation marks, it may appear to the editor that you are entering more than two strings; you can only specify two strings in the CHANGE command.

Action: Check the syntax of the command. If a string has embedded blanks, enclose it in quotation marks. If a string has embedded single quotation marks, enclose it in double quotation marks. If a string has embedded double quotation marks, enclose it in single quotation marks. Then reenter the command.

USXF009I NO CHAR "string" FOUND

Reason: The editor has searched the entire text without finding the indicated string.

Action: None.

USXF010W ERROR CHARACTERS "string"

Reason: The string used to replace the one found is too long.

Action: Adjust the length of the found string or reduce the length of the replacement string to match the length of the one found.

USXF012I FOUND nnn OCCURRENCES OF "string"

Reason: A string specified in the FIND ALL command has been found the specified number of times.

Action: None.

USXF014I CHANGED nnn OCCURRENCES OF "string"

Reason: A string specified in the CHANGE ALL command has been changed in the text the specified number of times.

Action: None.

USXF016E CHANGE COMMAND NOT ENABLED IN BROWSE MODE

Reason: The CHANGE command was used in the Browse Option to search for and change the next occurrence of a string.

Action: None. The CHANGE command can only be used when editing text (Edit Option) and not while in Browse mode.

USXF018W CHANGED nnn OCCURRENCES WITH nnn ERRORS OF "string"

Reason: The string identified in the CHANGE ALL command has been changed successfully (nnn OCCURRENCES) with (nnn ERRORS).

Action: Look for the error message on the line number field(s) and make the necessary correction(s).

USXI002E INVALID COMMAND

Reason: An invalid line command has been entered.

Action: Check the syntax of the line command on the line number field. Correct and reenter the command.

USXI006E INVALID ON THIS LINE

Reason: A line command has been entered on a line for which the command is invalid.

Action: Reenter the line command on an appropriate line.

USXI008E INVALID SCROLL AMOUNT

Reason: An invalid Scroll Option was entered in the SCROLL field.

Action: Check the syntax of the Scroll Option next to the word SCROLL. Be sure the option starts in the left-most position of the field. Correct syntax or position.

USXL002W BLOCK COMMAND INCOMPLETE

Reason: A partial sequence of Line Commands, in block form, is incomplete and cannot be executed.

Action: If you are just scrolling or using the FIND command to locate the line to complete the block command, this message serves as a warning. Complete the command and execute.

Otherwise, check the syntax of the commands to be sure all commands in block form are in pairs. Correct the commands and reexecute.

USXL004E COMMAND CONFLICT

Reason: A sequence of Line Commands cannot be executed.

Action: Check the order of the commands. Correct the commands and reexecute.

USXL006W MOVE/COPY PENDING

Reason: A move or copy cannot be executed because of a missing 'A'(after), 'B' (before), 'C' (copy), or 'M' (move) line command or COPY Primary command. **Action:** Enter the missing command.

USXL008E ITERATION COUNT MISMATCH

Reason: Block (RR) line command iterations have conflicting values.

Action: Check the syntax of the command. Make sure that the values of the iterations match (one or both may be left blank).

USXL009E LINE COMMAND RANGE CONFLICT

Reason: A sequence of Line Commands cannot be executed because the range of one line command overlaps the range of another.

Action: Check the order of the commands. Correct the commands and reexecute.

W2001 MODIFIED DATA ENTERED, COMMAND IGNORED

Reason: This message is displayed when data has been entered in the unprotected area and in the command input area. The data entered in the unprotected area always takes precedence over any command entered. (Refer to the GSIRECEL online help for a detailed discussion.)

Action: To enter the command, rekey the first character in the displayed command and press the ENTER key.

Note: This will not occur if MAPIN mode is FAST.

W2003 OCCURS DEPENDING ON CONTROL FIELD ALTERED - REDISPLAY RECORD

Reason: A control field in an 'OCCURS DEPENDING ON' clause has been changed.

Action: GSIRECEL has changed the field in the record data buffer. If you want to add or delete data in a field, enter 'DISPLAY record-name'. This will reformat the record to allow data to be added or deleted in the display record buffer area.

W2004 A REDEFINING FIELD WAS MODIFIED

Reason: This message indicates that a field in a redefined group has been changed.

Action: GSIRECEL has changed the field in the record data buffer. To view the record in its new format enter the 'DISPLAY record-name' command. This will avoid possible confusion when the display is different.

W2008 RECORD DISPLAY INCOMPLETE - TOO MANY (FIELDS/OCCURS)

Reason: The record to be displayed could not fit into the display buffer area. The display buffer area ran out of line storage space.

Action: Enter the 'DISPLAY record-name CONTINUE' command to view the remaining fields.

W2009 RECORD DISPLAY INCOMPLETE - FIELD TOO LONG

Reason: The record to be displayed could not fit into the display buffer area. The display buffer area ran out of line storage space.

Action: Enter the 'DISPLAY record-name CONTINUE' command to view the remaining fields. (If you were displaying a field, the entire record must be displayed to use the CONTINUE option.)

W2010 USAGE MODE MAY NOT BE CHANGED FOR A BIT FIELD

Reason: The usage mode can be changed for any type of field except bit.

Action: None.

W5001 MODIFIED DATA ENTERED, PF KEY IGNORED

Reason: Record data was changed at the same time that a PF key associated with a command was pressed, and MAPIN mode was not FAST.

Action: None.

XRPT001E THERE IS NO RECORD LEVEL SELECTION CRITERIA FOR THIS RECORD

Reason: The record immediately preceding this message does not have any Record Level Selection Criteria specified for it. You may have selected Field Level Selection Criteria on the Record Level Selection Criteria screen, but failed to complete the Field Level Selection Criteria. The specification cannot be used until it is completed.

Action: Use the CA-IDMS/DBX online Selection Criteria Specification component to complete the specification.

XRPT002E THE FROM/TO PAGE NUMBER OR DIRECT DBKEY IS OUTSIDE THE RECORD'S FROM/THRU PAGE RANGE(from-page/thru-page)

Reason: The Record Level Selection Criteria immediately preceding this message contains a page number that falls outside the record's from/thru page range for the current dbname/segment. The most likely cause of this error is that the specification was created with a different dbname/segment than the one you are attempting to use with the Database Extract Component.

Action:

1. Specify a dbname/segment on the SYSIDMS file that contains the proper page range for all records in the specification.
2. Use the CA-IDMS/DBX online Selection Criteria Specification Component to modify the page numbers in the specification.

Resubmit the job.

XTRC001I USING SUBSCHEMA name; COMPILED date time; DBNAME name

Reason: The subschema and associated information for the EXTRACT step are is displayed.

Action: None.

XTRC002I EXTRACT STEP STARTED ... date time

Reason: The date and time the EXTRACT step started are displayed.

Action: None.

XTRC003I STORAGE POOL SIZE...nnnn BYTES

Reason: The amount of storage, in bytes, required for the extract record and internal tables is displayed.

Action: See Chapter 5, "Operations" for information about CA-IDMS/DBX storage requirements.

XTRC004I INITIATING RECORD BINDS

Reason: CA-IDMS/DBX prepares to bind all records that are to be extracted.

Action: None.

XTRC005I INITIATING READIES

Reason: CA-IDMS/DBX prepares to ready all areas participating in the extract process. The names of all readied areas and the ready mode follow this message.

Action: None.

XTRC006I BEGINNING SWEEP OF AREA name ... date time

Reason: The date and time CA-IDMS/DBX began sweeping the indicated area are displayed.

Action: None.

XTRC007I END OF AREA SWEEP ... date time

Reason: The date and time CA-IDMS/DBX ended the area sweep of the area named in the previous XTRC006I message are displayed.

Action: None.

XTRC008I BEGINNING WALK OF INDEX name ... date time

Reason: The date and time CA-IDMS/DBX began retrieving the indicated index are displayed.

Action: None.

XTRC009I END OF INDEX WALK ... date time

Reason: The date and time CA-IDMS/DBX ended the retrieval of indexes for the index named in the previous XTRC008I message are displayed.

Action: None.

XTRC010I BEGINNING DIRECT DBKEY RETRIEVAL FOR AREA name ... date time

Reason: The date and time CA-IDMS/DBX began retrieving records by Direct DBKEY for the indicated area are displayed.

Action: None.

XTRC011I END OF DIRECT DBKEY RETRIEVAL FOR AREA ... date time

Reason: The date and time CA-IDMS/DBX ended the retrieval of records by Direct DBKEY for the area named in the previous XTRC010I message are displayed.

Action: None.

XTRC012I EXTRACT STEP ENDED ... date time

Reason: The date and time the EXTRACT step ended are displayed.

Action: None.

XTRC013I EXTRACT STATISTICS. . .

Reason: Statistics for the EXTRACT step follow this message.

Action: Refer to Chapter 4, "Reports" for information regarding the statistics.

XTRC014E DBKEY_STACK OVERFLOW

Reason: CA-IDMS/DBX was attempting to save set information in a stack area. No more room was available, however. Generally, one stack entry is needed for each set in a path. When a very complex specification is created, the default value is insufficient.

Action: Contact Computer Associates Product Support with this message.

XTRC015E SHORT ON STORAGE...number BYTES REQUESTED

Reason: The number of bytes required for executing the TRACT step was not available in the region/partition.

Action: Increase the region/partition size and resubmit the job. See Chapter 5, "Operations" for information about CA-IDMS/DBX storage requirements.

XTRC016E BEGINNING CALC KEY RETRIEVAL FOR AREA name ... date time

Reason: The date and time CA-IDMS/DBX began retrieving records by CALC keys for the indicated area are displayed.

Action: None.

XTRC017I END OF CALC KEY RETRIEVAL FOR AREA name ... date time

Reason: The date and time CA-IDMS/DBX ended the retrieval of records by CALC keys for the area indicated in the previous XTRC016I message are displayed.

Action: None.

XTRC018I BEGINNING KEY RETRIEVAL FOR INDEX name ... date time

Reason: The date and time CA-IDMS/DBX began retrieving records by sort keys for the indicated index are displayed.

Action: None.

XTRC019I END OF KEY RETRIEVAL FOR INDEX ... date time

Reason: The date and time CA-IDMS/DBX ended the retrieval of records by sort keys for the index named in the previous XTRC018I message are displayed.

Action: None.

XTRC020I USEREXIT name COULD NOT BE LOADED; RC=code: reason

Reason: The named userexit module could not be loaded and processing could not continue for the indicated reason.

Action: IF *code* equals:

- **004** — Make sure the named module was link edited into the load/core image library(ies) being used.
- **008** — Increase the amount of storage for the job stop. If the module name is USVTPARM, refer to Chapter 5, "Operations."
- Any other number — Contact Computer Associates Product Support with this message.

XTRC022E SUBSCHEMA CONTAINS AREAS WITH MIXED PAGE GROUPS OR MIXED RADIX -- NOT SUPPORTED

Reason: An attempt was made to ready an area with a different page group from those already readied.

Action: Database Extractor cannot be run against a subschema that contains mixed page groups or mixed radius. **XXXX001E INTERNAL ERROR - diagnostics**

Reason: An internal processing error, indicated by the diagnostics message, was detected by CA-IDMS/DBX.

Action: Contact Computer Associates Product Support with this message and diagnostics text.

XXXX002E INVALID DBKEY/PAGE# hex-dbkey/hex-number; MAX PAGE NUMBER FOR SUBSCHEMA IS hex-number

Reason: CA-IDMS/DBX was attempting to convert a DBKEY into its associated page and line number. The converted page number, however, was larger than the maximum page number for the subschema. The most likely cause of this error is that the

specification was created with a different dbname/segment than the one you are attempting to use currently.

Action:

1. Specify a dbname/segment on the SYSIDMS file that contains the proper page range for all records in the specification.
2. Use the CA-IDMS/DBX online Selection Criteria Specification Component to modify the page numbers in the specification.

Resubmit the job.

XXXX003E AN UNRECOVERABLE type ERROR HAS OCCURRED text

Reason: An unexpected error prevents processing from completing normally. A dump is forced in the event that more information is needed. Possible type values with their corresponding OS/390 abend codes are:

- U002 UNKNOWN
- U004 DML
- U008 GSSPRINT
- U012 GSSFILE
- U016 GSSCALL
- U020 PROCESSING

Possible text values are:

- CHECK AUDIT REPORT FOR DIAGNOSTICS
- R5 POINTS TO DIAGNOSTIC MESSAGE

Action: Proceed as indicated by the audit report diagnostic message or the message in the dump pointed to by register 5. If neither message is present, contact Computer Associates Product Support with this message.

2R12001I RETRIEVING SELECTION CRITERIA SPECIFICATIONS FOR USER: name

Reason: CA-IDMS/DBX prepares to retrieve and convert all specifications for the indicated user ID.

Action: None.

2R12002I RETRIEVING SPEC: name

Reason: CA-IDMS/DBX prepares to retrieve the named specification so that it may be converted to Release 15.0.

Action: None.

2R12003I SPECIFICATION name SUCCESSFULLY CONVERTED; UPDATED WITH DMCL=name DBNAME=name

Reason: CA-IDMS/DBX successfully converted the named specification to Release 15.0. The specification is owned by the user ID named in the previous 2R12001I message.

Action: None.

2R12004E SPECIFICATION name WAS **NOT CONVERTED**

Reason: CA-IDMS/DBX did not convert the named specification to Release 15.0 due to a prior error noted on the Audit Report.

Action: Correct the situation that caused the error and rerun the Convert to Release 15.0 job again. CA-IDMS/DBX converts only those specifications that have not already been converted.

2R12005E SPECIFICATION name IS AT RELEASE "release"; IT MUST AT RELEASE I10.00 TO BE CONVERTED

Reason: If the release number is:

1. x03.5x - You are attempting to run USV2R12 against the CA-IDMS/DBX Release 3.5 database without first executing USVCVTX.
2. X15.0x - The specification has already been converted.
3. Other than x3.5x or x15.0x - An unknown release has been encountered.

Action:

1. See Appendix B, "Converting to CA-IDMS/DBX Release 15.0" for details about the steps required to convert to CA-IDMS/DBX Release 15.0.
2. None.
3. Contact Computer Associates Product Support with this message.

2R12006E INVALID PSUB BLOCK DETECTED: name

Reason: An internal error was detected while CA-IDMS/DBX was converting a specification.

Action: Ensure that CA-IDMS/DBX was installed and linked successfully, and is being executed from the proper library.

Appendix A. JCL Editing Commands

A.1	Editing Commands	A-4
A.1.1	Scroll Options	A-4
A.1.2	Primary Commands	A-4
A.1.3	Line Commands	A-4
A.2	Program Function Keys	A-5
A.3	Entering Commands	A-6
A.4	Scroll Options	A-8
A.5	Primary Commands	A-9
A.5.1	BOTTOM Command	A-9
A.5.2	BOUNDS Command	A-9
A.5.3	CANCEL Command	A-9
A.5.4	CAPS Command	A-10
A.5.5	CHANGE Command	A-10
A.5.5.1	Change Command Rules	A-11
A.5.6	CURSOR Command	A-11
A.5.7	DOWN Command	A-11
A.5.8	EDITOR-ID Command	A-12
A.5.9	END Command	A-12
A.5.10	ENTER Command	A-12
A.5.11	EXCLUDE Command	A-13
A.5.12	FIND Command	A-13
A.5.13	FIRST Command	A-14
A.5.14	KEYS Command	A-14
A.5.15	LAST Command	A-14
A.5.16	LEFT Command	A-14
A.5.17	LOCATE Command	A-15
A.5.17.1	Using the LOCATE Command	A-15
A.5.18	MEMORY Command	A-15
A.5.19	NULLS Command	A-16
A.5.20	PROFILE Command	A-16
A.5.21	RCHANGE Command	A-16
A.5.21.1	Using the RCHANGE and RFIND PF Keys to Selectively Change Strings	A-17
A.5.22	RESET Command	A-18
A.5.23	RESHOW Command	A-18
A.5.24	RFIND Command	A-19
A.5.25	RIGHT Command	A-19
A.5.26	SAVE Command	A-19
A.5.27	TABB Command	A-19
A.5.28	TABF Command	A-20
A.5.29	TABS Command	A-20
A.5.30	TIME Command	A-20
A.5.31	TOP Command	A-21
A.5.32	UP Command	A-21
A.6	Line Commands	A-22
A.6.1.1	Entering Line Commands	A-22
A.6.1.2	How to Use Line Commands	A-22

A.6.2	A (after) Command	A-22
A.6.3	B (before) Command	A-22
A.6.4	BNDS (bounds) Command	A-23
A.6.5	COLS (columns) Command	A-23
A.6.6	C (copy) Command	A-23
A.6.6.1	Rules for Using the Copy Line Command	A-24
A.6.7	D (delete) Command	A-24
A.6.7.1	Rules for Using the D (delete) Line Command	A-24
A.6.8	X (exclude) Command	A-25
A.6.9	I (insert) Command	A-25
A.6.10	M (move) Command	A-25
A.6.10.1	Rules for Using the Move Line Command	A-26
A.6.11	R (repeat) Command	A-26
A.6.11.1	Rules for Using the R (repeat) Line Command	A-27
A.6.12	TABS Command	A-27
A.7	Text Manipulation Line Commands	A-28
A.7.1	Text Split Command	A-28
A.7.2	Text Flow Command	A-28
A.7.3	Text Entry Command	A-29
A.7.4	Destructive Line Shift Command	A-29
A.7.5	Protective Line Shift Command	A-30

This appendix provides a guide to the JCL editing commands that are available in the CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX) JCL editor. This appendix describes each command and its syntax.

A.1 Editing Commands

There are the following types of editing commands:

- Scroll Options
- Primary Commands
- Line Commands.

A.1.1 Scroll Options

Scroll options are used to determine how many lines or columns of the JCL to scroll up, down, right, or left when using a primary command or a PF key.

A.1.2 Primary Commands

Primary commands are used to:

- Locate the desired line of the JCL
- Find the next occurrence of a string
- Reset the screen display to remove all line commands, column markers, and extraneous messages
- Cancel changes made with the editor to the JCL
- Turn the CAPS Mode on or off
- Display the time and date
- Terminate EDITOR session, save changes made to the JCL, and return to CA-IDMS/DBX
- Save changes made to the JCL and remain in EDITOR session.

A.1.3 Line Commands

Line commands are used to:

- Copy source lines within the JCL
- Move source lines within the JCL
- Specify the location at which source lines are to be copied or moved
- Repeat source lines in the JCL
- Delete source lines
- Insert blank source lines
- Display a line with column markings across the screen.

A.2 Program Function Keys

PF keys are set to many frequently used commands. Therefore, you can enter a command from any position on the Edit screen with one keystroke. In addition, the PA1, PA2, and CLEAR keys are set to redisplay the screen. Use the KEYS primary command to change EDITOR PF key settings.

To execute a single command set for a PF key, press that key. The command executes when you press the PF key.

A.3 Entering Commands

The following are descriptions of where commands are entered:

- **Scroll Options**--Enter these options at the far right side of the second line on the screen, after the word SCROLL.
- **Primary Commands**--Enter these commands at the left side of the second line, after the word COMMAND. This field is called the COMMAND line.
- **Line Commands**--Enter these commands in the line number fields at the left of the source.

Example	Function
RESet	Keywords appear in mixed case. The minimum required portion of each keyword appears in uppercase.
Find string	Variables appear in lowercase. You substitute an appropriate value for each variable.
Up [number-of-lines]	Brackets indicate optional clauses or commands.
CAPS $\left[\begin{array}{c} / & & \backslash \\ < & \text{ON} & > \\ \backslash & & / \\ & \text{OFF} & \end{array} \right]$	Braces enclose two or more options. Select an option.
APS $\left[\begin{array}{c} / & & \backslash \\ < & \text{ON} & > \\ \backslash & & / \\ & \text{OFF} & \end{array} \right]$	A left arrow indicates the default value.

Exhibit A.1: Notation Conventions

Item	Rule
Order of Commands	You must enter a B (before) or an A (after) line command in conjunction with the COPY primary command and the C (copy) and M (move) line commands to indicate where to copy or move the lines.
Entering Blanks in Commands	<p>Blanks (character spaces) are ignored in line command sequences, so you can enter blanks between a command and a value without affecting processing.</p> <p>You must enter at least one blank (character space) between a primary command and a primary command value. You cannot embed blanks in a keyword.</p>
Command Stacking	You can enter multiple primary and line commands. Primary commands must be separated by a semicolon (;).

Exhibit A.2: Command Syntax Rules

A.4 Scroll Options

```
/ Page          \  
< Half        >  
| Csr         |  
\ number-of-lines /
```

Where:

Page

specifies that a whole screen is to be scrolled whenever an UP, DOWN, RIGHT, or LEFT command is used.

Half specifies that a half screen is to be scrolled whenever an UP, DOWN, RIGHT, or LEFT command is used.

Csr

specifies that the line with the cursor on it is to become: the bottom line displayed whenever the UP command is used, the top line whenever the DOWN command is used, the left-most column whenever the RIGHT command is used, or the right-most column whenever the LEFT command is used.

number-of-lines

specifies that this number of lines are to be scrolled whenever an UP, DOWN, RIGHT, or LEFT command is used.

Use scroll options to specify how much of the screen is scrolled when you use an UP, DOWN, RIGHT, or LEFT primary command (or corresponding PF key) by itself.

At the far-right side of the second line on the Edit screen, the word **SCROLL** appears followed by one of the scroll options. To change the current setting, enter one of the other options over the current setting. The scroll option you set remains in effect until you enter a different setting.

A.5 Primary Commands

Primary commands are entered on the second line of the Edit screen after the word **COMMAND**. You can enter more than one primary command at a time. Use the following syntax:

command;command

A.5.1 BOTTOM Command

BOttom

The **BOTTOM** command displays the last full screen at the bottom of the JCL.

A.5.2 BOUNDS Command

BOUnds [lb rb]

Where:

lb

specifies the left bound.

rb

specifies the right bound.

The **BOUNDS** command sets the left and right column bounds. These bounds are saved in the edit profile. In addition, the **BOUNDS** command alters the action of the **FIND**, **CHANGE**, **Line Shifts**, and other commands that are column-sensitive.

You must specify left and right bounds, or neither, and the left bound must be smaller than the right bound. If bounds are specified incorrectly or without an operand, the default is the data set minimum.

A.5.3 CANCEL Command

CANce1

Use the **CANCEL** command to cancel all changes made to the JCL since the last **SAVE** and to exit the Edit JCL screen. You are returned to the previous display.

A.5.4 CAPS Command

CAPS $\left[\begin{array}{l} / < \text{ON} > \backslash \\ \backslash \text{OFF} / \end{array} \right]$

Use the CAPS command to turn the CAPS Mode on and off. With the CAPS Mode on, all new alpha data is translated into uppercase. With the CAPS Mode off, the data remains unaffected. Data that was initially entered with the CAPS Mode off remains in lowercase unless you edit the field.

A.5.5 CHANGE Command

CHANGE $\left[\begin{array}{l} / < \text{ALL} > \backslash \\ \backslash \text{FIRST} / \end{array} \right] \left[\begin{array}{l} / < \text{string} > \backslash \\ \backslash * \end{array} \right] \left[\begin{array}{l} / < \text{replacement-string} > \backslash \\ \backslash * \end{array} \right] [\text{lb}[\text{rb}]] \left[\begin{array}{l} / < \text{X} > \backslash \\ \backslash \text{NX} / \end{array} \right]$

Where:

string

specifies the string of characters to find and replace by *replacement-string*.

replacement-string

specifies the string of characters used to replace *string*.

* (**asterisk**) specifies the string value from the last FIND or CHANGE command entered.

ALL

specifies that all occurrences of a string are to be replaced in scanned lines.

lb rb

specifies left and right bounds (column positions) for the find. If specifying just the left bound, the string can be found anywhere within those bounds.

X

specifies only excluded lines are to be scanned.

NX

specifies only non-excluded lines are to be scanned.

Use the CHANGE command to search for and change the next occurrence of a string in the JCL.

The EDITOR begins searching at the position of the cursor when you enter the command, and it searches downward until the string is found. If the cursor is on the COMMAND line when you enter the command, the editor begins searching at the top line displayed.

If the string is not found, it is changed to the replacement string.

A.5.5.1 Change Command Rules

- ALL, FIRST, and the 'lb rb' can appear in any order, but the *replacement-string* must follow *string*.
- If a string has embedded blanks, enclose the string in either single or double quotes. For example:

```
CHANGE 'program nmae' 'program name'
CHANGE 'program nmae' 'program name'
```

- If a string has a single asterisk (*), number, ALL, or FIRST, enclose *string* in quotation marks:

```
CHANGE '*' 'comments'
```

- If a string has leading quotation mark (single or double) enclose the string in quotation marks of the opposite kind. For example:

```
CHANGE '"t' t
```

- If CAPS Mode is OFF, enter the *string* as it appears in the text and the *replacement-string* as it should appear in the text. If CAPS Mode is ON, all lowercase characters are translated to uppercase characters.

A.5.6 CURSOR Command

CURsor

The CURSOR command moves the cursor directly to the COMMAND line. It functions in the same way as the home key.

The default keys are PF12 and PF24.

A.5.7 DOWN Command

```
DOWN [ / number-of-lines \ ]
      [ Max
      [ < Half >
      [ \ Page / ]
```

Where:

Max

specifies the last full screen at the bottom of the text.

Half

specifies to scroll down half a screen.

Page

specifies to scroll down a full screen.

Use the DOWN (scroll down) command to display source lines below your current view. The amount you scroll is determined by the Scroll setting. The setting can be overridden at any time.

The default keys are PF8 and PF20.

A.5.8 EDITOR-ID Command

EDITOR-ID

The EDITOR-ID command displays the release number for the version of the EDITOR invoked. The release is displayed in message format.

A.5.9 END Command

END

Use the END command to save the current JCL (if changed) and return to the CA-IDMS/DBX session.

A.5.10 ENTER Command

ENTER

The ENTER command redisplay the current screen with any changes made.

The default key is ENTER.

A.5.11 EXCLUDE Command

```
EXCLUDE [ / first-line \
         < last-line >
         \ ALL
         / ]
```

Where:

first line

specifies that the first line number is to be excluded from the display.

last-line specifies that the last line in the block of lines is to be excluded from the display. If this field is left blank, the default is the last line in the text.

ALL

specifies that all lines in the text are excluded from the display.

The EXCLUDE command limits your display to specific lines within the text being edited. Redisplay excluded lines with the RESET command.

A.5.12 FIND Command

```
FIND [ / < ALL > \
      \ FIRST / ] [ / < string > \
                  \ *
                  ] [1b[rb]] [ / < X > \
                              \ NX
                              ]
```

Where:

ALL

specifies that all occurrences of a string are to be found in scanned lines.

FIRST specifies that the first occurrence of a string is to be found.

string specifies the string is to be found.

*** (asterisk)**

specifies the string value from the last FIND command entered.

lb rb

specifies the left and right bounds (column positions) for the find. If specifying just the left bound, the string to be found must begin in that same column. If specifying both left and right bounds, the string to be found can appear anywhere within those bounds.

X

specifies only excluded lines are to be scanned.

NX

specifies only non-excluded lines are to be scanned.

Use the FIND command to search for a string in the JCL. The EDITOR begins searching at the position of the cursor when you enter the command. It searches downward until the string is found. If the cursor is on the COMMAND line when you enter the command, the EDITOR begins searching at the top line displayed.

The operands of this command can appear in any order.

A.5.13 FIRST Command

FIRst

The FIRST command displays the first screen of the JCL.

A.5.14 KEYS Command

KEYS

Use the KEYS command to view or change EDITOR PF key settings.

A.5.15 LAST Command

LASt

The LAST command presents the last screen of the JCL.

A.5.16 LEFT Command

LEft [number-of-columns]

The LEFT command scrolls the current display to the left the specified number of columns. If the number parameter is blank, the Scroll Options are used.

A.5.17 LOCATE Command

Locate line-number

Where:

line-number

specifies the number of the line to which you want to move. The line you specify is the top line displayed on the screen.

Use the LOCATE command to move the display to a specific source line or to the beginning or the end of the JCL.

A.5.17.1 Using the LOCATE Command

To move to a specific line, you specify the line number of the line you want displayed.

To move to the beginning of the JCL, you can specify 0 as the line number, and the first line of the JCL is the top line displayed.

To move to the end of the JCL, you can specify the last line number or any larger number, and the last line of the JCL will be the top line displayed. For example, if the last line of the JCL is numbered 307 and you use 999, line number 307 is the top line displayed.

A.5.18 MEMORY Command

MEMory $\left[\begin{array}{l} / < \text{STATIC} > \\ \backslash \text{DYNAMIC} / \end{array} \right]$

Where:

STATIC

specifies to obtain storage one time and track until the end of the session.

DYNAMIC

specifies to obtain new storage and free it each time the EDITOR driver module is called.

Internal storage is determined by the MEMORY command.

A.5.19 NULLS Command

Nulls $\left[\begin{array}{l} / < \text{ON} > \\ \backslash \text{OFF} / \end{array} \right]$

Use the NULLS command to turn the NULLS Mode on and off. ON is the default. In the NULLS ON Mode, null characters replace all but the first blank in a line. If the line is completely blank, null characters are not substituted.

To use the keyboard insert mode key to insert characters, turn NULLS Mode ON so that edit automatically inserts trailing nulls in each data line in the display.

Normally, each data line is one field on the display. However, by using the TABS Mode, 3270 tab characters can be created in selected columns and is a way to break up a line into several fields. NULLS replaces trailing blanks in each field.

If edit places the cursor into a field, only blanks that follow the cursor on the line will be changed to NULLS. If a character is deleted with the DELETE key, all of the characters in the field are shifted left one position and a null character is inserted into the last position in the field. If the ERASE EOF key is pressed, null characters fill the field on which the cursor is located from the cursor to the end of the field.

A.5.20 PROFILE Command

PROFile

Use the PROFILE command to display the environmental parameters under which your Edit session is operating.

The PROFILE identifiers that are displayed correspond to the primary commands. When you change parameters that are unique to your profile, the changes are saved to the CA-IDMS/DC user sign-on.

Use the RESET command to clear the display of any line commands, column markers, or extraneous messages.

A.5.21 RCHANGE Command

RCHANGE

The RCHANGE command repeats the last CHANGE command that was executed.

The EDITOR begins searching at the first line of the display. When it reaches the bottom of data, the message "BOTTOM OF DATA REACHED" appears in the top line of the screen.

The default keys are PF6 and PF18.

A.5.21.1 Using the RCHANGE and RFIND PF Keys to Selectively Change Strings

You can use the RFIND PF key in conjunction with the RCHANGE PF key to selectively change strings. For example, consider the following sequences:

Part	Command	Description
Part 1	CHANGE Work-Name-1 Work-Name-2	In Part 1, you enter the CHANGE command to change the next occurrence of Work-Name-1 to Work-Name-2.
Part 2	RFIND key	In Part 2, you want to find the next occurrence of Work-Name-1, but you are not sure if you will want to change the string. By pressing the RFIND key, the next occurrence of Work-Name-1, which was specified in the CHANGE command during Part 1, will be found.
Part 3	RCHANGE key	In Part 3, you want to change the occurrence of Work-Name-1 that was found during Part 2 to Work-Name-2. By pressing the RCHANGE key, the occurrence will be changed.
Part 4	RFIND key RFIND key	In Part 4, you press the RFIND key to find the next occurrence of Work-Name-1. This time you do not want to change the string, so instead of pressing the RCHANGE key, you press the RFIND key again. The next occurrence of Work-Name-1 will be found.

Exhibit A.3: First Sample RFIND-RCHANGE Sequence

Part	Command	Description
Part 1	CHANGE Work-Name-1 Work-Name-2 RFIND key	In Part 1, you want to find the next occurrence of Work-Name-1, but if you are not sure if you want to change it to Work-Name-2. If you key in the CHANGE command and press the RFIND key instead of the ENTER key, the RFIND will be executed. The next occurrence of Work-Name-1 that was specified in the CHANGE command will be found.
Part 2	RFIND key	In Part 2, you decide that you do not want to change the string that was found during Part 1, press the RFIND key. The next occurrence of Work-Name-1 will be found.
Part 3	RCHANGE key	In Part 3, you want to change the string that was found during Part 2, press the RCHANGE key. This changes Work-Name-1 to Work-Name-2.

Second Sample RFIND-RCHANGE Sequence:

A.5.22 RESET Command

RESet

Use the RESET command to clear the display of any line commands, column markers, or extraneous messages.

The default keys are PF9 and PF21.

A.5.23 RESHOW Command

RESHOW

Use the RESHOW command to redisplay the original contents of a screen. This command is only valid when you have typed a screen of data but have **not** pressed the ENTER key.

Note: If you use the RESHOW command, you overlay the current screen with the previous screen.

A.5.24 RFind Command

RFind

The RFind command repeats the last Find command that was entered.

The RFind search begins at the position of the cursor. When it reaches the end of the file, it reaches the bottom and the message line states, BOTTOM OF DATA REACHED. Entering RFind again will resume the search at the top of the file. Then if the string is not found in the file, the message line displays **NO CHAR:** *string* **Found**. Entering the RFind command has no effect.

To selectively change strings, use the RFind PF key in conjunction with the RCHANGE PF key.

The default keys are PF5 and PF17.

A.5.25 RIGHT Command

Right [number-of-columns]

The RIGHT (scroll right) command scrolls the current display to the right the specified number of columns. If the number parameter is blank, the scroll options are used.

The default keys are PF11 and PF23.

A.5.26 SAVE Command

SAVE

Use the SAVE command to save the current JCL (if changed). The EDITOR session remains active.

A.5.27 TABB Command

TABB

Use the TABB (tab backward) command to move to the previous tab setting when TABS Mode is ON.

This command is invoked more efficiently if you assign it a PF key value.

A.5.28 TABF Command

TABF

Use the TABF (tab forward) command is used to move to the next tab setting when TABS Mode is ON.

This command is invoked more efficiently if you assign it a PF key value.

A.5.29 TABS Command

```
TABS [ / ON          \ ]  
      [ < OFF       > ]  
      [ | tab-character | ]  
      [ \ operand    / ]
```

Where:

tab-character

specifies any character used to signify a tab.

operand

specifies any of the following and their settings:

- **ADS** specifies every five positions from 1 through 65.
- **ASM** specifies the positions 1, 10, 16, and 36.
- **COBOL** specifies the positions 8, 12, 16, and 20.
- **STND** specifies the positions 1, 10, 16, and 36.

The TABS command sets software tabbing. Use the commands TABF (tab forward) and TABB (tab backward) to move a tab setting within the text. To customize tab settings, use the TABS line command.

A.5.30 TIME Command

TIME

The TIME command displays the time-of-day and the date in the message area of the screen. The TIME is given in military hh:mm:ss format. The date is given in standard mm/dd/yy format.

A.5.31 TOP Command

TOP

The TOP command displays the first full screen at the top of the source.

A.5.32 UP Command

UP $\left[\begin{array}{l} / \text{ number-of-lines } \backslash \\ | \text{ Max } \\ < \text{ Half } > \\ \backslash \text{ Page } / \end{array} \right]$

Where:

number-of lines

specifies the number of lines to scroll. If this is blank, then scrolling is determined by the scroll option.

Max

specifies that you want to scroll to the first screen of text.

Page

specifies that you want to scroll a full screen of text.

Use the UP (scroll up) command to display source lines above your current view. The amount you scroll is determined by the scroll option setting. You can override the setting at any time.

The default keys are PF7 and PF19.

A.6 Line Commands

Line commands are entered in Edit Mode with the cursor positioned to the left of the source lines, in the line number fields. To use a line command, type over the line numbers.

A.6.1.1 Entering Line Commands

Line commands are entered within the line number at the left of the line data. A line command is considered to be any characters entered at or to the left of the cursor in the line sequence number fields.

A.6.1.2 How to Use Line Commands

If you wanted to repeat the line 10 times, here is how the line would appear:

```
000003 Before entering R (repeat) command
R10003 After entering R (repeat) command
```

For the EDITOR to read the command as R10:

- Type 'R10' in the line number field and press the ENTER key
- Position the cursor immediately after R10 (type 'R1' and move the cursor to the right one position) and press the ENTER key.

A.6.2 A (after) Command

A

Use the A (after) line command in conjunction with the C (copy) and M (move) line commands.

A.6.3 B (before) Command

B

Use the B (before) line command in conjunction with the C (copy) and M (move) line commands.

A.6.4 BNDS (bounds) Command

BNDS

The BNDS command displays and allows changes to the current boundary settings. The bounds line is displayed at the line where you entered the command.

Change the current bounds setting by using the < character to define the left bound and the > character to define the right bound.

To remove the bounds line from the display, use the D (delete) line command or the RESET primary command.

A.6.5 COLS (columns) Command

COLS

The COLS command displays a line with the column markings for you to use as a reference. This line is for reference purposes only. It is not given a line number and is not saved with the text.

The column markings line appears before the line in which you enter the COLS command.

To remove the COLS line from the display, use the D (delete) line command or the RESET primary command.

A.6.6 C (copy) Command

C[number-of-lines]

Where:

number-of-lines specifies the number of lines to be copied. The default is 1.

C

specifies a single line to be copied.

Cn specifies the first of *n* lines to be copied.

CC...CC

specifies the first and last lines of a block of lines to be copied.

Use the C (copy) line command to copy one line or block of lines. The B (before) and A (after) line commands are used to specify the destination of the line or block to be copied. No other line commands can be entered on the lines to be copied.

A.6.6.1 Rules for Using the Copy Line Command

- When using the C *number-of-lines* or the CC form of the command, you cannot enter any other commands on the lines being copied
- Each CC must be paired with another CC
- You must pair a B (before) or an A (after) line command with every C or pair of CC commands.

A.6.7 D (delete) Command

D[*number-of-lines*]

Where:

number-of-lines

specifies the number of lines to be deleted.

D

specifies a single line to be deleted.

Dn

specifies the first of *n* lines to be deleted.

DD...DD

specifies the first and last lines of a block of lines to be deleted.

Use the D (delete) command to delete a line or block of lines. No other line commands can be entered on the lines to be deleted.

A.6.7.1 Rules for Using the D (delete) Line Command

- When using the D *number-of-lines* or the DD form of the command, you cannot enter any other commands on the lines being deleted
- Each DD must be paired with another DD.

A.6.8 X (exclude) Command

X[number-of-lines]

Where:

number-of-lines

specifies the number of lines excluded.

X

specifies a single line to be excluded.

Xn

specifies the first of n lines to be excluded.

XX...XX

specifies the first and last lines of a block of lines to be excluded.

Use the X (exclude) command to exclude lines from the display.

A.6.9 I (insert) Command

I[number-of-lines]

Where:

number-of-lines

specifies the number of lines to be inserted. The default is 1.

Use the I (insert) command to insert blank lines after the line in which the I command is entered. The I command is not used with the A (after) and B (before) line commands. If no data is typed on an inserted line, the blank inserted line is deleted from the display after the ENTER key is pressed or the RESET, UP, or DOWN primary command is entered.

A.6.10 M (move) Command

M[number-of-lines]

Where:

number-of-lines

specifies the number of lines to be moved. The default is 1.

M

specifies a single line to be moved.

Mn

specifies the first of *n* lines to be moved.

MM...MM

specifies the first and last lines of a block.

Use the M (move) command to move a line or block of lines. The B (before) or A (after) line commands are used to specify the destination of the lines to be moved. No other commands can be entered on the lines to be moved.

A.6.10.1 Rules for Using the Move Line Command

- When using the M *number-of-lines* or the MM form of the command, you cannot enter any other commands on the lines being moved
- Each MM must be paired with another MM
- You must pair a B (before) or an A (after) line command with every M or pair of MM commands.

A.6.11 R (repeat) Command

R[number-of-times]

Where:

number-of-times

specifies the number of times a line or block of lines is repeated. The default is 1.

R

specifies a single line to be repeated.

Rn

specifies a single line to be repeated *n* times.

RR

specifies the first and last lines of a block to be repeated one time.

Use the R (repeat) line command to repeat a line or block of lines directly after the last line to be repeated.

A.6.11.1 Rules for Using the R (repeat) Line Command

- Pair each RR *number-of-lines* with another RR *number-of-lines* to complete a block command
- If *number-of-lines* is specified on both RR block commands, the greater number is used
- No other line commands can be used on lines being repeated.

A.6.12 TABS Command

Type TABS in the line number field to view the current tab settings. You can also use the TABS command to change the tabs by overstriking the current setting (indicate by tab character) with the new positions you choose.

The TABS line may be deleted from the display by the D (delete) line command or the RESET primary command.

A.7 Text Manipulation Line Commands

The text manipulation line commands are used when entering or altering text data. These commands are especially useful when used in combinations. For example, use TS (text split), enter a word or phrase, and then use TF (text flow) to reformat the paragraph.

A.7.1 Text Split Command

TS number-of-lines

Where:

number-of-lines

specifies the number of lines to be inserted between the split line. The default is 1.

The TS line command splits the text at the cursor so that you can insert text. The text following the cursor is moved to the left margin of the paragraph and an additional line is inserted.

See the online documentation for examples of the TS line command.

A.7.2 Text Flow Command

TF rb

Where:

rb

specifies the right bound for the text.

The TF command starts processing at the current line and flows text upward to the end of a paragraph. The end of a paragraph may be indicated by a:

- Blank line
- Change in indentation
- Special characters

Temporary lines such as COLS or BNDS are deleted before text is flowed.

A single blank separates existing text from the words that are flowed upward from a lower line. When the end of a sentence is detected, two blanks are inserted.

See the online documentation for examples of Text Flow parameters.

A.7.3 Text Entry Command

TE number-of-lines

Where:

number-of-lines

specifies the number of blank lines requested.

The TE line command formats the screen with an unnumbered open text entry area that may be used without regard for line overflow. The cursor is positioned at the beginning of the first line and the remainder of the screen is blank. After you type the data and press the ENTER key, the text is flowed into a paragraph format.

If you type a number after the TE command, open the text entry area provided for only that number of lines.

See the online documentation for examples of TE command examples.

A.7.4 Destructive Line Shift Command

```
([number-of-columns]
)[number-of-columns]
(( [number-of-columns] . . . ((
)) [number-of-columns] . . . ))
```

Where:

number-of-columns

specifies the number of columns to shift. The default is 1.

```
(
)
```

specifies that the line be shifted to the left or right one column.

```
(n
)n
```

specifies that the line be shifted to the left or right *n* columns.

```
((
```

)

specifies the first and last lines of a block to be shifted to the left or right one column.

((n

))n

specifies the first line of a block to be shifted to the left or right *n* columns. Use a ((or)) to mark the last line of the block.

Destructive line shift moves the text a specified number of columns to the right-) or left-(. When the shift causes text to exceed the bound position, that text is discarded.

See the online documentation for line shift examples.

A.7.5 Protective Line Shift Command

```
<[number-of-columns]
>[number-of-columns]
<<[number-of-columns]. . .<<
>>[number-of-columns]. . .>>
```

Where:

number-of-columns

specifies the number of columns to shift. The default is 1.

(

)

specifies that the line be shifted to the left or right one column.

(n

)n

specifies that the line be shifted to the left or right *n* columns.

((

))

specifies the first and last lines of a block to be shifted to the left or right one column.

((n

))n

specifies the first line of a block to be shifted to the left or right n columns. Use a ((or)) to mark the last line of the block.

Protective line shift moves the text a specified number of columns to the right-> or left-<. When the shift causes the text to exceed the bound position, that text is retained and the shift operation is not completed.

See the online documentation for protective line shift examples.

Appendix B. Converting to CA-IDMS/DBX Release 15.0

- B.1 Conversion Steps B-4
 - B.1.1 Step 1. Create a Selection Criteria Specification B-4
 - B.1.2 Step 2. Create JCL for the Database Extract Process B-5
 - B.1.3 Step 3. Submit the Database Extract JCL B-5
 - B.1.4 Step 4. Backup the CA-IDMS/DBX Release 3.5 Database B-5
 - B.1.5 Step 5. Install CA-IDMS/DBX Release 15.0 B-5
 - B.1.6 Step 6. Convert the Extract and Communication Files B-6
 - B.1.7 Step 7. Run the CA-IDMS/DBX Load Program B-10
 - B.1.8 Step 8. Execute the Final Conversion Program B-10

This appendix describes the steps required to convert a CA-IDMS/DBX Release 3.5 database to a CA-IDMS/DBX Release 15.0 database.

B.1 Conversion Steps

Perform the following steps to convert your CA-IDMS/DBX Release 3.5 database to Release 15.0:

1. Create a CA-IDMS/DBX Selection Criteria Specification using CA-IDMS/DBX Release 3.5.
2. Create JCL for the Database EXTRACT process.
3. Submit the EXTRACT JCL using CA-IDMS/DBX Release 3.5.
4. Backup the CA-IDMS/DBX Release 3.5 database.
5. Install Release 15.0 of CA-IDMS/DBX.
6. Convert the Extract and Communication files created in Step 3 using USVVCVTX.
7. Run Release 15.0 of the CA-IDMS/DBX Database Load program.
8. Execute the final conversion program (USV2R12).

B.1.1 Step 1. Create a Selection Criteria Specification

Using CA-IDMS/DBX Release 3.5, create a Selection Criteria Specification as follows:

1. Enter the CA-IDMS/DBX task code at the CA-IDMS/DC prompt.
2. At the CA-IDMS/DBX Main Menu screen, type option **1** and press the ENTER key.
3. On the Specify Database Build Specification screen, enter the following information:


```
Specification Name==> UNLOAD-DBX-DATABASE
Source Subschema==>  USVSUB00
Target Subschema==>  USVSUB02
```
4. Press the ENTER key.
5. On the Database Entry Point Selection Menu screen, make a hierarchical (H) record selection and specify a record name of CLUSTER, and press the ENTER key.
6. On the Record Level Selection Criteria screen for the CLUSTER record, press the ENTER key.
7. On the Path-Record Set Selection List screen press PF3 (END).
8. On the Database Entry Point Selection screen, press PF3 (END).

At this point, the Selection Criteria Specification is saved on the CA-IDMS/DBX database.

B.1.2 Step 2. Create JCL for the Database Extract Process

Using CA-IDMS/DBX Release 3.5, create JCL for the batch extract process:

1. Enter the CA-IDMS/DBX task code at the CA-IDMS/DC prompt.
2. At the CA-IDMS/DBX Main Menu screen, type option **2** and press the ENTER key.
3. On the Edit JCL screen, enter a JCL member name and press the ENTER key.
4. Create JCL to extract from your CA-IDMS/DBX Release 3.5 database. The Target or Distribution source library member USVEXEC (OS/390), TOOLJCL library member USVEXEC.S (VSE/ESA), or the USVEXEC EXEC (VM/ESA), contains EXTRACT and LOAD JCL. You want to run just the EXTRACT component, not the LOAD EXEC. See Chapter 5, "Operations" for more information on the USVEXEC JCL and the EXTRACT component. Press the PF3 (END) key to save the JCL on the CA-IDMS/DBX database.

B.1.3 Step 3. Submit the Database Extract JCL

Using CA-IDMS/DBX Release 3.5, or your batch editor, submit and execute the JCL for the batch extract process:

1. At the CA-IDMS/DBX Main Menu screen, type option **4** and press the ENTER key.
2. On the Submit JCL for Execution screen, type the following information:

```
JCL Member Name====> The JCL member name for the JCL you created in Step 2.  
Specification Name====> UNLOAD-DBX-DATABASE  
Transient SSC Name====> USVSUB02
```

Then press the ENTER key.

When the JCL successfully executes, the CA-IDMS/DBX Release 3.5 database is fully extracted.

B.1.4 Step 4. Backup the CA-IDMS/DBX Release 3.5 Database

Backup your CA-IDMS/DBX Release 3.5 database.

B.1.5 Step 5. Install CA-IDMS/DBX Release 15.0

Install CA-IDMS/DBX Release 15.0 as described in the *CA-IDMS installation guides*.

B.1.6 Step 6. Convert the Extract and Communication Files

Use the intermediate conversion utility contained in Target or Distribution source library member USVCVTX (OS/390), TOOLJCL library member USVCVTX.S (VSE/ESA), or the USVCVTX EXEC (VM/ESA) to convert to Release 15.0 format the Extract and Communication Files created in Step 3. The JCL and key for USVCVTX are shown below.

```
//INTERMED EXEC PGM=USVCVTX,REGION=1280K
//STEPLIB DD DSN=your.dbx.loadlib,DISP=SHR
// DD DSN=your.idms.loadlib,DISP=SHR
//EXTRACTS DD DSN=your.rel35.dbx.extract,DISP=SHR
//XTRCSOUT DD DSN=your.rel12.dbx.extract,DISP=(NEW,CATLG),
// UNIT=unit,VOL=SER=volser,
// SPACE=(CYL,(primary,secondary))
//COMMFILE DD DSN=your.rel35.dbx.commfile,DISP=SHR
//COMMFOUT DD DSN=your.rel12.dbx.commfile,DISP=(NEW,CATLG),
// UNIT=unit,VOL=SER=volser,
// SPACE=(TRK,1)
//SYSLSST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
```

Exhibit B.1: USVCVTX--OS/390 JCL for Converting the Extract and Communication Files

- **your.dbx.loadlib** — The name of the load library into which CA-IDMS/DBX load modules were link edited.
- **your.idms.loadlib** — The name of the load library into which CA-IDMS load modules were link edited.
- **your.rel35.dbx.extract** — The data set name of your Release 3.5 Extract File.
- **your.rel12.dbx extract** — The data set name to be assigned to the Release 15.0 converted Extract File.
- **unit** — A proper unit for the Release 15.0 converted file.
- **volser** — A volume serial ID for the Release 15.0 converted file.
- **your.rel35.dbx.commfile** — The data set name of your Release 3.5 Communication File.
- **your.rel12.dbx.commfile** — A data set name to be assigned to the Release 15.0 converted Communication File.
- **a** — An appropriate SYSOUT class for your environment.

Exhibit B.2: Key to USVCVTX--JCL for Converting Extract and Communication Files

```

* SS JOB JNM=USVCTX
* // JOB USVCTX
*
// OPTION LOG,PARTDUMP
// UPSI a
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL dbms,'dbx.corelib'
// EXTENT ,volserc
// DLBL idms,'idms.corelib'
// EXTENT ,volserc
*
// LIBDEF PHASE,SEARCH=(dbms.sublib,idms.sublib),TEMP
// DLBL EXTRACT,'your.rel35.tdb.extracts',0,SD
// EXTENT SYS020,volserw
// ASSGN SYS020,DISK,VOL=volserw,SHR
*
// DLBL XTRCOUT,'your.rel12.dbx.extracts',0,SD
// EXTENT SYS010,volserw,,rel-trk-blk,amount
// ASSGN SYS010,DISK,VOL=volserw,SHR
*
// DLBL COMFILE,'your.rel35.tdb.commfile',0,SD
// EXTENT SYS021,volserw
// ASSGN SYS021,DISK,VOL=volserw,SHR
*
// DLBL COMFOUT,'your.rel12.dbx.commfile',0,SD
// EXTENT SYS015,volserw,,rel-trk-blk,amount
// ASSGN SYS015,DISK,VOL=volserw,SHR
*
* *** OUTPUT - PRINT REPORT FILE
// ASSGN SYS006,SYSLST
*
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC USVCTX,SIZE=(USVCTX,400K)
*
* R15.0 SYSIDMS parameters
* /*
* /&
* SS EOJ

```

Exhibit B.3: S.USVCTX/USVCTX.S--VSE/ESA Converting the Extract and Communication

- **dbms** — The file name of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **dbx.corelib** — The file id of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **idms** — The file name of the core image library into which the executable phases of CA-IDMS was installed.
- **idms.corelib** — The file id of the core image library into which the executable phases of CA-IDMS was installed.
- **volser_** — The volume serial number or generic assignment of the volume on which the file, as specified in the previous statement, resides. The following letters

identify the file in questions: c=core image library; w=work file; r=relocatable library; s=source statement library.

- **.sublib** — The sublibrary name of the VSE/ESA library specified in the previous file name.
- **your.rel35.tdb.extract** — The name of the Release 3.5 CA-IDMS/TDB Extract File to be converted.
- **your.rel12.dbx.extract** — The name of the file to which the converted extracts will be written and used by the Release 15.0 CA-IDMS/DBX Load Component.
- **rel-trk-blk** — Relative track or relative block number: the starting position of the DASD for storage of the file specified in the previous statement.
- **amount** — The number of tracks or blocks you need for storage of the work file specified in the previous statement. Allocate the same amount of space as the Release 3.5 file.
- **your.rel35.dbx.commfile** — The name of the Release 3.5 CA-IDMS/TDB communication file to be converted.
- **your.rel12.dbx.commfile** — The name of the file to which the converted communication file will be written and used by the Release 15.0 CA-IDMS/DBX Load Component.

Exhibit B.4: Key to S.USVCVTX/USVCVTX.S--Converting Extract and Communication

```

/* */
TRACE OFF; SIGNAL ON ERROR
/*
*/
DBX_LOADLIB_FN      = 'dbxlib'
IDMS_LOADLIB_FN     = 'idmslib'
/*
    Link and access the Minidisks containing the required librari(e)s
*/
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
'GLOBAL LOADLIB ' DBX_LOADLIB_FN IDMS_LOADLIB_FN
/*
    Product specific files.
*/
'FILEDEF SYSLST PRINTER'
'FILEDEF SYSUDUMP PRINTER'
'FILEDEF EXTRACTS FILE EXTRACTS fm'
'FILEDEF XTRCSOUT FILE XTRCSOUT fm'
'FILEDEF COMMFIL FILE COMMFIL fm'
'FILEDEF COMMFOUT FILE COMMFOUT fm'
/* */
SIGNAL OFF ERROR
SAY 'STARTING CONVERSION OF EXTRACT AND COMMUNICATIONS FILES'
'EXECOS OSRUN USVCTX'
USVCTX_RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVCTX LISTING'
'CP SPOOL PRINTER OFF'
SAY 'USVCTX FINISHED WITH A RETURN CODE OF' USVCTX_RC
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT USVCTX_RC
/* */
/* ++++++ */
ERROR:
/* ++++++ */
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR

SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL

'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USVCTX LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/* */

```

Exhibit B.5: USVCTX--VM/ESA EXEC for Converting Extract and Communication Files

- **dbxlib** — The file name of the load library into which you downloaded CA-IDMS/DATABASE EXTRACTOR.
- **idmslib** — The file name of the load library which contains your CA-IDMS load modules.

- **FILE EXTRACTS fm** — The file name, file type, and file mode of the Release 3.5 Extract File to be converted.
- **FILE XTRCSOUT fm** — The file name, file type, and file mode of the Release 15.0 converted Extract File.
- **FILE COMMFILE fm** — The file name, file type, and file mode of the Release 3.5 Communication File.
- **FILE COMMFOUT fm** — The file name, file type, and file mode of the Release 15.0 converted Communication File.

Exhibit B.6: Key to USVCVTX--for Converting Extract and Communication Files

B.1.7 Step 7. Run the CA-IDMS/DBX Load Program

Use the LOAD component JCL contained in Target or Distribution source library member USVEXEC (OS/390), TOOLJCL library member USVEXEC.S (VSE/ESA), or the USVEXEC EXEC (VM/ESA), using the Release 15.0 load library and the converted Extract File and Communication File created in Step 6. Member USVEXEC contains EXTRACT and LOAD JCL. You want to run just the LOAD component, not the EXTRACT component. See Chapter 5, “Operations” for more information on the USVEXEC JCL and the LOAD component.

Note: The target subschema (USVSUB02) defines all set member records with a CONNECT option of MANUAL, and all sets with an ORDER option of NEXT. For this reason, the transient subschema process is not required for the target subschema.

B.1.8 Step 8. Execute the Final Conversion Program

Use the JCL contained in Target or Distribution source library member USV2R12 (OS/390), TOOLJCL library member USV2R12.S (VSE/ESA), or the USV2R12 EXEC (VM/ESA), to execute the final conversion process against the CA-IDMS/DBX Release 15.0 database. The model JCL and key are shown below.

```
//CONVERT EXEC PGM=USV2R12,REGION=1536K
//STEPLIB DD DSN=your.loadlib,DISP=SHR
//          DD DSN=your.idms.loadlib,DISP=SHR
//SYSCTL  DD DSN=your.idms.sysctl,DISP=SHR
//SYSLSST DD SYSOUT=a
//SYSUDUMP DD SYSOUT=a
```

Exhibit B.7: USV2R12--OS/390 JCL for Executing the Final Conversion Program

- **your.dbx.loadlib** — The name of the load library into which CA-IDMS/DBX load modules were link edited.
- **your.idms.loadlib** — The name of the load library into which CA-IDMS load modules were link edited.
- **your.idms.sysctl** — The data set name of the SYSCTL file for the CV used during CA-IDMS/DBX batch processing.

- **a** — An appropriate SYSOUT class for your environment.

Exhibit B.8: Key to USV2R12--OS/390 JCL for Executing the Final Conversion Program

```

* SS JOB JNM=USV2R12
* // JOB USV2R12
*
// OPTION LOG,PARTDUMP
// UPSI a
*
* *** CORE IMAGE LIBRARY FOR PRODUCT
// DLBL dbms,'dbx.corelib'
// EXTENT ,volserc
// DLBL idms,'idms.corelib'
// EXTENT ,volserc
*
// LIBDEF PHASE,SEARCH=(dbms.sublib,idms.sublib),TEMP
*
* *** OUTPUT - PRINT REPORT FILE
// ASSGN SYS006,SYSLST
*
// DLBL SYSIDMS,'#SYSIPT',0,SD
// EXEC USV2R12,SIZE=(USV2R12,400K)
*
* R15.0 SYSIDMS parameters
* /*
* /&
* SS E0J

```

Exhibit B.9: S.USV2R12/USV2R12.S--VSE/ESA JCL for Executing Final Conversion Program

- **a** — The UPSI switch to invoke CA-IDMS Central Version as specified in your IDMSOPTI module.
- **dbms** — The file name of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **dbx.corelib** — The file id of the core image library into which the executable phases of CA-IDMS/DBX were installed.
- **idms** — The file name of the core image library into which the executable phases of CA-IDMS was installed.
- **idms.corelib** — The file id of the core image library into which the executable phases of CA-IDMS was installed.
- **volser_** — The volume serial number or generic assignment of the volume on which the file, as specified in the previous statement, resides. The following letters identify the file in questions: c=core image library; w=work file; r=relocatable library; s=source statement library.
- **.sublib** — The sublibrary name of the VSE/ESA library specified in the previous file name.

Exhibit B.10: Key to S.USV2R12/USV2R12.S--VSE/ESA JCL for Executing Final Conversion

```

/* */
TRACE OFF; SIGNAL ON ERROR
/*
DBX_LOADLIB_FN      = 'dbxlib'
IDMS_LOADLIB_FN     = 'idmslib'
/*
        Link and access the Minidisks containing the required librarie(s)
*/
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
'GLOBAL LOADLIB ' DBX_LOADLIB_FN IDMS_LOADLIB_FN
/*
        Product specific files.
*/
'FILEDEF SYSLST  PRINTER'
'FILEDEF SYSUDUMP PRINTER'
'FILEDEF SYSCTL  fn SYSCTL fm'
'FILEDEF SYSIDMS SYSIDMS INPUT fm'
/* */
SIGNAL OFF ERROR
SAY 'STARTING CONVERSION OF SPECIFICATIONS'
'EXECOS OSRUN USV2R12'
USV2R12_RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USV2R12 LISTING'
'CP SPOOL PRINTER OFF'
SAY 'USV2R12 FINISHED WITH A RETURN CODE OF' USV2R12_RC
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT USV2R12_RC
/* */
/* ++++++ */
ERROR:
/* ++++++ */
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR

SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL

'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USV2R12 LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/* */

```

Exhibit B.11: USV2R12--VM/ESA EXEC for Executing Final Conversion Program

- **dbxlib** — The file name of the load library into which you downloaded CA-IDMS/DATABASE EXTRACTOR.

- **idmslib** — The file name of the load library which contains your CA-IDMS load modules.
- **fn SYSCTL fm** — The file name, file type, and file mode of the SYSCTL file used by the Central Version (CV) during batch processing.
- **SYSIDMS INPUT fm** — The SYSIDMS input file containing the parameters used to specify your runtime environment.

Exhibit B.12: Key to USV2R12--VM/ESA EXEC for Executing Final Conversion Program

Glossary

Bill-of-Material (BOM). CA-IDMS/DATABASE EXTRACTOR (CA-IDMS/DBX) defines a BOM structure as one record type owning another record type through two sets, one of which has a manual connection, the other an automatic.

CA-IDMS/DBX Database. The database created when CA-IDMS/DBX is installed. It contains the Selection Criteria Specifications and JCL members that you save.

Communication File. File used to pass information between the CA-IDMS/DBX Batch Components.

Copy Utility. CA-IDMS/DBX allows you to copy saved JCL members and Selection Criteria Specifications from other CA-IDMS/DBX users.

Database Entry Point. Defines the beginning of a database path. An entry point can be either a record or an index that is used to retrieve a record.

Database Extract Component. The Batch Component that accesses the source database to extract record and set information.

Database Load Component. The Batch Component that loads the target database with information extracted from the source database.

Database Path. Tells the Extract Component how to walk through your source database and look for records to be extracted that are then loaded onto your target database.

Deselection. To remove all selection criteria from the record.

Documentation Component. The Online Component that provides information about using CA-IDMS/DBX screens, command syntax, PF keys, the Transfer Facility, and the Online Message Facility.

Entry Index. A type of database entry point that defines the beginning of a database path. If you tell CA-IDMS/DBX to use an entry index, records are retrieved without performing an area sweep. Extraction with an entry index usually takes less time than the same path definition with an Entry Record.

Entry Record. A type of database entry point that defines the beginning of a database path. When you tell CA-IDMS/DBX to use an entry record, the Extract

Component sweeps the area in which the record resides in order to retrieve the record. If you specify CALC keys in the Field Level Selection Criteria for the record, however, CA-IDMS/DBX performs an

OBTAIN CALC to retrieve the record.

Extract File. Contains information extracted from the source database by the Database Extract Component.

Field Level Selection Criteria. The field values and conditions that you want CA-IDMS/DBX to test for when determining if a record should be extracted from the source database. For example, you can tell CA-IDMS/DBX to extract a DEPT record if the DEPT-NAME field contains the value 'HISTORY'.

Hierarchical Index Selection. All records indexed by the named index are selected. The selected records are handled exactly like a hierarchical record selection.

Hierarchical Record Selection. Begins with the named record that CA-IDMS/DBX marks as the entry record. All records that are members of sets owned by the entry record, do not already participate in a path, and are not indexed by an entry index, are selected in the path. All selected records that are owners of sets are subject to the same selection process as the entry record.

JCL Editor Component. The online component used to create and modify JCL members.

JCL Member Print Utility. The batch component that allows you to print a JCL member you created and saved using the JCL Editor Component.

JCL Submission Component. The online component used to submit JCL to your batch machine, and optionally, to insert parameters for the Batch Extract and Load Components of CA-IDMS/DBX.

JCL Utilities Component. The online component used to copy, delete, print, and rename JCL members.

Network Index/Record Selection. Function exactly like a hierarchical selection. In addition, all owners of sets in which a selected record participates as a member are also selected.

A hierarchical selection selects all records going down in the hierarchy, whereas a network selection selects all records in the network.

Record Level Selection Criteria. The information you specify with the online Selection Criteria Specification Component that CA-IDMS/DBX uses at EXTRACT time to determine if a record in the source database should be extracted.

Recursive Data Structure. A structure is considered to be recursive if a record type is retrieved by more than one set type in the same path. A Bill-of-Materials (BOM) structure is an example of a recursive data structure.

Selection Criteria Specification. The instructions that tell CA-IDMS/DBX what records to extract from the source database.

Selection Criteria Specification Component. The online component used to describe the existing source database, describe the database path(s), describe Selection Criteria Specifications, and save the Specifications under a name of your choice.

Source Database. An existing database from which you extract records in order to create a new test database.

Specification Name. A name you give to the Selection Criteria Specification which is saved in the CA-IDMS/DBX database.

Specification Print Utility. The batch component that allows you to print Selection Criteria Specifications that you created and saved.

Specification Utilities Component. The online component used to copy, delete, print, and rename your Selection Criteria Specifications.

Syntax File. The file used to pass appropriate CA-IDMS DDDL syntax between the CA-IDMS/DBX batch components, and the CA-IDMS DDDL utility.

Target Database. A new or existing database that CA-IDMS/DBX loads with records extracted from a source database.

User Profile Component. The online component used to tailor PF key assignments to suit your needs.

Workfile. A temporary file used by the Database Load Component. Information is saved in the Workfile between sort exits.

Index

A

A Sample Selection Criteria Specification Session 3-11
Additional Screens 3-27

B

Bill-of-Material (BOM) X-1

C

CA-IDMS/DBX Audit Reports 4-4
CA-IDMS/DBX Components 1-5
CA-IDMS/DBX Database X-1
CA-IDMS/DBX Database Paths 2-6
CA-IDMS/DBX Implementation 2-5
CA-IDMS/DBX Requirements 5-5
CA-IDMS/DBX Screens 3-7
Communication File X-1
Consider a Test Database 2-4
Conversion Steps B-4
Copy Utility X-1
Creating CA-IDMS/DBX Database Paths 2-12
Customizing the CA-IDMS/DBX
Environment--USVTPARM 5-53

D

Database Entry Point X-1
Database Extract Component X-1
Database Load Component X-1
Database Path X-1
Deselection X-1
Documentation Component X-1

E

Editing Commands A-4
Entering Commands A-6
Entry Index X-1
Entry Record X-1
Executing CA-IDMS/DBX 5-9
Extract Audit Report 4-5
Extract File X-1

F

Field Level Selection Criteria X-1

G

Getting Started 3-4

H

Hierarchical Index Selection X-1
Hierarchical Record Selection X-1

J

JCL Editor Component X-1
JCL Member Print Utility X-1
JCL Submission Component X-1
JCL Utilities Component X-1

L

Line Commands A-22
Load Audit Report 4-11

N

Network Index/Record Selection X-1

O

Online Documentation 3-6
Operational Considerations 5-4
Organization xi

P

Performing the EXTRACT and LOAD
Steps--USVEXEC 5-18
Primary Commands A-9
Printing a Selection Criteria
Specification--USVPSPC 5-46
Printing JCL--USVPJCL 5-41
Printing Online Documentation--USVPRINT 5-51
Program Function Keys A-5
Purpose x

R

Record Level Selection Criteria X-2
Recovery Procedure 5-8
Recursive Data Structure X-2
Related Publications xii

S

Scroll Options A-8
Selection Criteria Specification X-2
Selection Criteria Specification Component X-2
Signing on to CA-IDMS/DBX 3-5
Source Database X-2
Specification Name X-2
Specification Print Utility X-2
Specification Utilities Component X-2
Syntax File X-2
Syntax Notation 5-10

T

Target Database X-2
Text Manipulation Line Commands A-28
The PROCESS Parameter 5-14
The Transfer Facility 3-8
Typical Session Activities 3-9

U

User Profile Component X-2

W

What is CA-IDMS/DBX? 1-4
Workfile X-2
Writing a User Exit Module--CUVUSRXA 5-55

