

Manually Manipulating the Database with CA IDMS™ DML Online

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CA IDMS™ Technical Conference

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Abstract

CA IDMS DML/Online (DMLO) is an interactive CA IDMS productivity tool which allows ad-hoc navigation, retrieval, and update of CA IDMS databases. This session offers a general overview of the tool and its capabilities along with highlights of its various routine uses.



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About the Presenter

Linda lives in Concord California, is a native of Hammond, Indiana, long time resident of Upstate New York and a graduate of Purdue University and Cal State East Bay.

She first became involved with IDMS in the 1980's at Wegmans Foods in Rochester NY.

In 1986 Linda joined Cullinet Software as a Customer Support Rep, specializing in onsite support and education of the IDMS client base and technical support of the CAS Application product line.

After Cullinet/CA, Linda was a Senior Consultant and Director of Education at Tiburon Technology, where she continued to work with the IDMS client base, managing projects, offering her technical expertise and developing and delivering product training.

In 2004, after a move to the San Francisco bay area, Linda became a senior project manager at APL Limited, helping to form the PMO with her primary focus being infrastructure projects.

Linda decided her passion was to own her own company, focused on improving IT, it's relationship with the business, and it's utilization of legacy resources. In 2006 she founded Run Right, LLC, where she continued her work with IDMS most notably a legacy modernization project at a State Agency.

In 2012 she began working with Mindcore where she has been involved in IT management consulting.

Linda's creative endeavors include baking, cooking, sewing, quilting, knitting and needlepoint (which she enjoys while copiloting various travel adventures with her husband Don)



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Topics

- Introduction
 - What it is
 - When to use it
 - How to use it
- Learning through Doing
 - The DMLO Session and the commands it uses
 - Initiating
 - Session Setup
 - Execution
 - Termination
- Security and some final thoughts



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What is DMLO?

An interactive CA IDMS productivity tool which allows ad-hoc:

- Navigation
- Retrieval &
- Update

of CA IDMS databases



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DMLO Overview

- Full-screen editor for database records
- Provides COBOL-like structured record displays with element values
- Commands are executed interactively, and results are immediately available
- Includes security and audit capabilities for protecting the database from unauthorized access



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Where can it be used?

- Application development
- Database design and analysis
- Performance evaluation
- Production support (with great care)
- CA IDMS training - Learning tool for database navigation techniques



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DMLO Usage Examples

- Create OOAK records
- Create and maintain test database structures
- Check the results of program testing
- Locate and fix data integrity problems in production databases
- Validate navigation logic before coding
- Test LRF path definitions
- Analyze the I/O efficiency of access strategies



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The Basics Learn by Doing

A Quick Session Run-through

The DMLO Session

- Initiating
- Session Setup
- Execution
- Termination



Initiating

Invoking the tool:

V23 ENTER NEXT TASK: DMLO

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Session Setup

- User Signon
- Subschema Selection
- Profile
- READYing & BINDing

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Signon Screen

```

===== D M L / O N L I N E   R E L E A S E   n n . n n =====
USER ID   ==> FULAL01                                PASSWORD ==>
PROFILE NAME==>          READY MODE==>   (R=RETR/U=UPDT/P=PROF)
SUBSCHEMA ==>          SCHEMA   ==>          VERSION   ==>
                                DICTNAME  ==>          DICTNODE ==>
                                DBNAME    ==>          DBNODE   ==>
                                PRINT CLASS=> A          INTERRUPT==> PA1
                                LOGICAL DISPLAY WIDTH=> 080    LOWER CASE=> N

PF1 /PF13 : HELP
PF5 /PF17 : PROFILE LIST

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===== Computer Associates International Inc. =====
    
```



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Security at Signon

User id

- Filled in if user already signed on to CV, password not displayed
- If tool and database are unsecured, then no user id is necessary
 - NOTE: User Profiles will not be available
- If tool is **unsecured** but database (or dictionary) **is**, then a valid user id and password must be entered



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What do you want to access & how?

- The only required signon parameter is the subschema
- Supplied from:
 - Explicitly entering subschema name
 - Implicitly via the profile name
- The READY MODE can be entered in either case



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Explicitly Entering Subschema

- Type the name of the subschema into the data entry fields on the signon screen
 - Optionally enter the schema name
- Select the subschema from the Subschema Selection screen



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Directly Specifying Subschema

```

===== D M L / O N L I N E   R E L E A S E   n n . n n =====
USER ID   ==> FULAL01                                PASSWORD ==>
PROFILE NAME==>                                READY MODE==> (R=RETR/U=UPDT/P=PROF)
SUBSCHEMA ==> EMPDEMO  SCHEMA   ==> EMPSCHM1  VERSION ==> 1
                                DICTNAME ==>                                DICTNODE ==>
                                DBNAME   ==>                                DBNODE   ==>
                                PRINT CLASS=> A                                INTERRUPT==> PA1
                                LOGICAL DISPLAY WIDTH=> 080                                LOWER CASE=> N

PF1 /PF13 : HELP
PF5 /PF17 : PROFILE LIST

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```



Invoking Subschema Selection

- Enter at least one “?” in the schema or subschema field name
- Only subschemas the user has access to are displayed
- Mask characters can be used to refine the list of subschemas displayed



Using Mask Characters

- Valid Mask Characters:
 - ?
 - * (Note: this appears not to be working)
 - space
- Can be used in subschema or schema name
- Mask character will match any character in the name
- Any other character used in the pattern must match the character in the name in the same location in the string

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Example of Masking

- A mask ***SCHM will match all schema names with SCHM in the 4th thru 7th position of the name.
 - ABCSCHM will match
 - SCHMABC will NOT match

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Subschema Order

- The default sort order of the subschema list is by schema
- The subschemas will be sorted into subschema name sequence if a “?” is used in the mask

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Requesting Subschema Selection

```

===== D M L / O N L I N E   R E L E A S E   n n . n n =====
USER ID    ==> FULAL01                                PASSWORD ==>
PROFILE NAME==>                                READY MODE==> (R=RETR/U=UPDT/P=PROF)
SUBSCHEMA  ==> ? SCHEMA    ==> VERSION ==>
                                DICTNAME ==> DICTNODE ==>
                                DBNAME    ==> DBNODE    ==>
                                PRINT CLASS=> A          INTERRUPT==> PA1
                                LOGICAL DISPLAY WIDTH=> 080    LOWER CASE=> N

PF1 /PF13 : HELP
PF5 /PF17 : PROFILE LIST

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```

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Subschema Selection Screen

ACTION	SCHEMA	VERSION	SUBSCHEMA	ERROR
-	EMPSCHEM	0100	EMPSSLR1	
-	EMPSCHEM	0100	EMPSS01	
-	ESSSCHEM	0001	ESSSUB00	
-	IDMSNTWK	0001	IDMSNWKA	
-	IDMSSECO	0001	IDMSSECO	
-	IDMSSECS	0001	IDMSSECS	
-	IDMSSECU	0001	IDMSSECU	
-	SSKSICHEM	0001	SSKSUB00	
-	USDSICHEM	0001	USDSUB00	
-	USOSICHEM2	0001	USOSUB02	

DML/0 Rnn.nn ===== CA, Inc.
 RECORD= STATUS= DBKEY=0000000000-0000 KEY0=0000000000-0000

I6015 ACTION = (S)elect or PA1 to exit
 SUBSCHEMA=? SCHEMA= VER=0000 COL 001-080 LINE 0001 OF 0010



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What is a Profile?

- A Profile is a saved set of user-defined characteristics of a previous DMLO session created at the end of a session
- This can include
 - Session control parameters
 - AREA ready modes used
 - PF Key assignments
 - Abbreviations and macro commands



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Session Control Parameters in the Profile

- Subschema, Schema & version
- DBNAME, DBNODE, DICTNAME, DICTNODE
- Display and processing options
- User exit specifications



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Types of Profiles

- User
 - Created by the user
 - Can have multiple profiles stored
- Global
 - Defined by system administrator
 - Available to all users
 - Usually generically useful
 - Usually begin with SYS



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Displaying the Profile Selection Screen

- Press the indicated PF key from the Signon Screen
 - In our example that was PF5
- Enter an unknown PROFILE name
 - Standard Signon Screen
 - Quick-in session startup

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Profile Selection Screen

ACTION	PROFILE	SRC	SUBSCH	SCHEMA	DBNAME	DICTNAME	USED	UPDT
—	EMPDemo		EMPSS01	EMPSCHM	EMPDemo		mmddyy	mmddyy
—	EMPPROF		EMPSS01	EMPSCHM			mmddyy	mmddyy
—	RALPH		IDMSNWKA	IDMSNTWK			mmddyy	mmddyy
—	TESTINVC		EMPSS01	EMPSCHM			mmddyy	mmddyy
—	X		EMPSS01	EMPSCHM			mmddyy	mmddyy
—	IDMSNWKA	SYS	IDMSNWKA	IDMSNTWK			mmddyy	mmddyy

DML/O Rnn.nn ----- CA, Inc.
 RECORD= STATUS= DBKEY=0000000000-0000 KEY0=0000000000-0000
 I6011 ACTION = (K)ill or (S)elect, enter maint command or PA1 to exit
 SUBSCHEMA= SCHEMA= VER=0000 COL 001-080 LINE 0001 OF 0006

To select a profile, place an 'S' in the action field and press enter

NOTE: You can also delete an existing profile from this screen

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Quick-In Session Startup

- From ENTER NEXT TASK CODE - enter the DMLO task code along with:
 - Profile-name – must be predefined for this user or global
 - “?” will take you to Profile Selection screen
 - Ready-mode(optional)
 - U (shared update)
 - R (Shared retrieval)
 - P (defined in profile).
- Skips signon screen within the tool



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Quick-In Session Startup Examples

V23 ENTER NEXT TASK: DMLO ?

V23 ENTER NEXT TASK: DMLO LINDA R



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OK, So Where Are We Now?

At this point, we've selected the database we want, the view of the data via the subschema and the mode of access, either update or retrieval.

It's now time to get more specific.....

Let's BIND the records and READY the areas for database access

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Binding Records

- Before data can be retrieved from the database, the record must be bound
- If AUTOBIND is in effect, then all records in the subschema will be bound automatically as they are used
- Records can also be explicitly bound:
 - Via the Record Display Screen
 - Directly entering BIND statements on the command line
 - Use of CBIND within a CLIST

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AUTOBIND

- When DMLO is installed on the system, one of the system parameters is AUTOBIND.
 - This parameter is either set ON or OFF
 - On is the default
- The value is changeable at runtime by entering:
 - SET AUTOBIND (ON/OFF)
 - Changing the setting on the options screen
- The BIND of the record is automatic and is performed on the first reference in a DML command

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Record Display Screen

- This screen displays all the records defined in the selected subschema
- It is used to either BIND the record or INIT the record buffer's contents and currency information in the session

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When do you see it?

- There is no AUTOBIND setting and no READY MODE was selected on signon
- A BIND command with no record name is executed
- A SHOW RECORDS command is executed
- ?R is entered alone or as part of a command



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Here's what you'll see

ACTION	RECORD	AREA	BND
-	001 COVERAGE	INS-DEMO-REGION	
-	002 DENTAL-CLAIM	INS-DEMO-REGION	
-	003 DEPARTMENT	ORG-DEMO-REGION	
-	004 EMPLOYEE	EMP-DEMO-REGION	
-	005 EMPOSITION	EMP-DEMO-REGION	
-	006 EXPERTISE	EMP-DEMO-REGION	
-	007 HOSPITAL-CLAIM	INS-DEMO-REGION	
-	008 INSURANCE-PLAN	INS-DEMO-REGION	
-	009 JOB	ORG-DEMO-REGION	
-	010 NON-HOSP-CLAIM	INS-DEMO-REGION	
-	011 OFFICE	ORG-DEMO-REGION	
-	012 SKILL	ORG-DEMO-REGION	
-	013 STRUCTURE	EMP-DEMO-REGION	

```

DML/O Rnn.nn ===== CA, Inc.
RECORD=                STATUS=0000  DBKEY=0000000255-0008  KEY0=0000000000-0000
BIND
I6005 ACTION = (B)ind, (I)nit
SUBSCHEMA=EMPSS01  SCHEMA=EMPSCHM  VER=0100  COL 001-080  LINE 0001 OF 0013
  
```



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Command Line BINDs

- Records can be bound on the command line at any time during a session
- Syntax:
 - BIND ALL (binds all records in the subschema)
 - BIND record-name (binds only the specified record)

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Which is Best?

IT IS A MATTER OF PERSONAL CHOICE.....

- If you don't know what records you want to BIND, then using the Record Display Screen will give a full list of all records in the subschema
- If you know the records you want to BIND, then typing in the command line may be desirable

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One Final Note about BIND ALL

- Think twice about using the BIND ALL command with subschemas that have a large amount of records
- Overhead for such a command includes:
 - CPU time to perform all the BINDs
 - Storage for all the record buffers.



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Readying AREAs

Before data can be accessed from the database, the AREAs must be readied. AREAs are readied:

- Via the AREA Display Screen
- Command line READY statement
- Subschema default usage mode
- Signon Screen usage mode



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AREA Display Screen

- Displays the AREAs and their mode, if any
- Action code allows for update or retrieval READY command to be entered by AREA

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When do you see it?

- After signon if
 - AUTOBIND is in effect
 - READY Mode specified
 - RECORD Display Screen is not displayed
- SHOW AREA command is issued
- ?A is entered alone or as part of another command

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Area Display Screen Example

```

ACTION      AREA      MODE
—          —          —
001 EMP-DEMO-REGION
002 INS-DEMO-REGION
003 ORG-DEMO-REGION

DML/0 Rnn.nn ===== CA, Inc.
RECORD=          STATUS=0000 DBKEY=0000000255-0008 KEY0=0000000000-0000
I6006 ACTION = READY mode
SUBSCHEMA=EMPSS01 SCHEMA=EMPSCHM VER=0100 COL 001-080 LINE 0001 OF 0003
    
```

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Explicit AREA READYs

AREAs can be readied on the command line as follows:

- READY area-name USAGE
 - PROTECTED
 - EXCLUSIVE
 - RETRIEVAL
 - UPDATE
- NOTE: Default is shared if protected or exclusive are not indicated

READY CUST-AREA

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Execution

- Data Manipulation Screen
- LRF or Expanded
- DML vs. DMLO Commands



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Accessing the Database

- The next logical thing to do with the tool is to access data from the database. This is done via standard DML commands.
- Viewing or changing data is done via the Data Manipulation Screen, or the LRF or Expanded Command Screen.
- In addition to database records, scratch and queue records are also available for viewing or changing.



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Data Manipulation Screen

This screen can display the record occurrence data in three formats:

- Native, which displays a COBOL like layout of the record in standard DISPLAY format
- HEX, which displays a COBOL like layout of the record with the data in hexadecimal format
- DUMP, which display the data in hex and character dump format

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Data Manipulation Screen Example 1

```
mm/dd/yy.....RECORD : EMPLOYEE.....hh:mm:ss
02 EMP-ID-0415.....N 0120
02 EMP-NAME-0415.....G
03 EMP-FIRST-NAME-0415.....A MICHAEL
03 EMP-LAST-NAME-0415.....A ANGELO
02 EMP-ADDRESS-0415.....G
03 EMP-STREET-0415.....A 507 CISTINE DR
03 EMP-CITY-0415.....A WELLESLEY
03 EMP-STATE-0415.....A MA
03 EMP-ZIP-0415.....G
04 EMP-ZIP-FIRST-FIVE-0415.....A 01568
04 EMP-ZIP-LAST-FOUR-0415.....AX 404040
02 EMP-PHONE-0415.....N 6178870235
02 STATUS-0415.....A* FFFF
02 SS-NUMBER-0415.....N 127675593
02 START-DATE-0415.....G
03 START-YEAR-0415.....N 79
03 START-MONTH-0415.....N 09
03 START-DAY-0415.....N 08
DML/O Rnn,nn .....CA, Inc.
RECORD=EMPLOYEE STATUS=0000 DBKEY=0000075083-0001 KEY0=0000000000-0000
DIS EMPLOYEE
SUBSCHEMA=EMPS01 SCHEMA=EMPSCHM VER=0100 COL 001-080 LINE 0001 OF 0027
```

This is the native COBOL style display format for records

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Data Manipulation Screen Example 2

```
mm/dd/yy.....RECORD : MPLYEE.....hh:mm:ss
02 EMP-ID-0415.....NX F0F1F2F0
02 EMP-NAME-0415.....AX D4C9C3C8C1C5D3404040C1D5C7C5D3D6
=====+0016.....AX 404040404040404040
03 EMP-FIRST-NAME-0415.....AX D4C9C3C8C1C5D3404040
03 EMP-LAST-NAME-0415.....AX C1D5C7C5D3D64040404040404040
02 EMP-ADDRESS-0415.....AX F5F0F740C3C9E2E3C9D5C540C4D94040
=====+0016.....AX 40404040E6C5D3D3C5E2D3C5E8404040
=====+0032.....AX 404040D4C1F0F1F5F6F840404040
03 EMP-STREET-0415.....AX F5F0F740C3C9E2E3C9D5C540C4D94040
=====+0016.....AX 40404040
03 EMP-CITY-0415.....AX E6C5D3D3C5E2D3C5E8404040404040
03 EMP-STATE-0415.....AX D4C1
03 EMP-ZIP-0415.....AX F0F1F5F6F840404040
04 EMP-ZIP-FIRST-FIVE-0415.....AX F0F1F5F6F8
04 EMP-ZIP-LAST-FOUR-0415.....AX 40404040
02 EMP-PHONE-0415.....NX F6F1F7F8F8F7F0F2F3F5
02 STATUS-0415.....AX FFFF
02 SS-NUMBER-0415.....NX F1F2F7F6F7F5F5F9F3
DML/O Rnn.nn .....CA, Inc.
RECORD=EMPLOYEE STATUS=0000 DBKEY=0000075083-0001 KEY0=0000000000-0000
DIS EMPLOYEE HEX
SUBSCHEMA=EMPSS01 SCHEMA=EMPSCHM VER=0100 COL 001-080 LINE 0001 OF 0031
```

This is the HEX data COBOL style display format for records



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Data Manipulation Screen Example 3

```
mm/dd/yy.....RECORD : EMPLOYEE.....hh:mm:ss
0 1 2 3 4 5 6 7 8 9 A B C D E F 0 1 2 3 4 5 6 7 8 9 A B C D E F
0000 F0F1F2F0 D4C9C3C8 C1C5D340 4040C1D5 => 0120MICHAEL AN <=
0016 C7C5D3D6 40404040 40404040 40F5F0F7 => GELO 507 <=
0032 40C3C9E2 E3C9D5C5 40C4D940 40404040 => CISTINE DR <=
0048 40E6C5D3 D3C5E2D3 C5E84040 40404040 => WELLESLEY <=
0064 D4C1F0F1 F5F6F840 404040F6 F1F7F8F8 => MA01568 61788 <=
0080 F7F0F2F3 F5FFFFF1 F2F7F6F7 F5F5F9F3 => 70235 127675593 <=
0096 F7F9F0F9 F0F8F0F0 F0F0F0F0 F5F7F0F4 => 7909080000005704 <=
0112 F0F50000 => 05 <=

DML/O Rnn.nn .....CA, Inc.
RECORD=EMPLOYEE STATUS=0000 DBKEY=0000075083-0001 KEY0=0000000000-0000
DIS EMPLOYEE DUMP
SUBSCHEMA=EMPSS01 SCHEMA=EMPSCHM VER=0100 COL 001-080 LINE 0001 OF 0008
```

This is the DUMP style display format for records



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SET HEX/NATIVE

```

SET record-name / HEX \
    < NATive >
    | DUMP |
    \ NODUMP /

SET field-name / OF \ record-name / HEX \
    | < Within > | < NATive >
    | \ IN / | DUMP |
    \ NODUMP /
    
```

Controls the manner in which records or fields are displayed

- NATIVE: "standard COBOL style"
- HEX: "Hex data Cobol style"
- DUMP: "Dump style"
- NODUMP: Revert to last NATIVE or HEX setting

Takes effect on NEXT Display or record retrieval

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Data Manipulation Screen: Uses

- Displaying the contents of a particular data occurrence
- Changing the values of an existing database record occurrence
- Erasing records from the database
- Storing new records to the database
- Accessing and updating scratch and queue records

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LRF or Expanded Command Screen

- This screen works identically to the standard Data Manipulation screen except for the command line
- This screen has a multi-line command input area for very long commands such as complex WHERE expressions for LRF records
- If this is still insufficient room for a particular command, you may use the EQUATE facility to establish abbreviations for phrases/words in the command



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How to Display the Screen

- To display the Expanded Command screen:
 - Enter the command **SET LRF ON**,
 - Specify that option on the Options screen.
- You may switch back and forth between expanded command and standard format via the SET LRF OFF/ON command or the OPTIONS screen as desired
- You can do DML on the LRF screen, and vice versa



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LRF Screen Example

```

mm/dd/yy.....RECORD : EMPLOYEE.....hh:mm:ss
02 EMP-ID-0415.....N 0023
02 EMP-NAME-0415.....G
03 EMP-FIRST-NAME-0415.....A KATHERINE
03 EMP-LAST-NAME-0415.....A O'HEARN
02 EMP-ADDRESS-0415.....G
03 EMP-STREET-0415.....A 12 EAST SPEEN ST
03 EMP-CITY-0415.....A NATICK
03 EMP-STATE-0415.....A MA
03 EMP-ZIP-0415.....G
04 EMP-ZIP-FIRST-FIVE-0415.....A 02364
04 EMP-ZIP-LAST-FOUR-0415.....A 9999
02 EMP-PHONE-0415.....N 6178897134
02 STATUS-0415.....A 01
02 SS-NUMBER-0415.....N 019556712
02 START-DATE-0415.....G
DML/O Rnn.nn ===== CA, Inc.
OBT FIR EMPLOYEE IN &A

```

-OK-

STATUS=0000

LINE 0001 OF 0027



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DML vs. DMLO commands

We will now draw a distinction between DML commands and DMLO commands:

- DML commands are used to direct the actions of the database requests; DMLO passes these on in some format to CA IDMS for execution
- DMLO commands are used to direct the actions of the tool itself



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DML

DMLO allows the user to execute the full complement of CA IDMS DML verbs against a database.



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DML VERBS

- Control Statements (READY, BIND)
- Database Navigation Statements (FIND, OBTAIN)
- Database Modification Statements (ERASE, STORE)
- Save Statements (ACCEPT, RETURN)
- LRF
- SCRATCH/QUEUE



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DMLO Commands

- DISPLAY
- EQUATE
- HELP
- INIT
- MOVE
- PRINT
- READYLIST
- SAVE
- SET
- SHOW
- CLIST Commands
 - EDIT
 - EXEC
 - LEARN
 - LISTC

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DISPLAY

This DMLO command will display a record, group or element within a record using the various display options previously described on the Data Manipulation Screen

- Standard
- Hex
- Dump

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DISPLAY Example

- On the Data Manipulation Screen the user types
DISPLAY EMPLOYEE
- The standard format EMPLOYEE record with all it's fields is displayed on the screen

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EQUATE

- This command is used to create abbreviations for any keyword, phrase, subschema entity, element name or entire command

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HELP

Used to access DMLO online documentation:

- Complete descriptions of all DMLO screens
- Comprehensive information concerning various DMLO processing topics
- New features summaries
- Online message facility
 - You can access the online message text by entering option M at the first screen of any online documentation module



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INIT

- Loads record description from the dictionary and/or initializes record buffer
- Used to ensure that all record element descriptions are available and initialized to null values appropriate to their usage:
 - Numeric fields to zero
 - Others to spaces
- DMLO automatically INITs records the first time they appear in a DML command
 - Dictionary-owned (work) records used in CLISTs or scratch and queue processing MAY require an INIT
 - Records being STOREd that have not been OBTAINED first may also require an INIT



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INIT Command Format & Example

⌈ / nnnn \ ⌋

INIT rec-name | [Version] < Highest > | [REPL]

⌈ \ Lowest / ⌋

Where:

- **nnnn**—record version number
- **REPL**—force reload of the record element descriptions for dictionary-owned records. Used if changes to the record occurred in the dictionary during the DMLO session.

INIT EMPLOYEE

INIT EMPLOYEE REPL



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Work Records and INIT

- The INIT command must be used to access a non-subschema work record defined in the dictionary.
- This allocates storage for the record
- A DISPLAY command cannot be issued for this type of record until the INIT has been executed



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MOVE

Used to Transfer Data, the MOVE command can be used to move data without having to display the records containing the target fields.

MOVE source TO target, where source and target are any of the following:

- Fields in records
 - Subschema records
 - Work (dictionary) records
- Subschema control entities
 - ERROR-STATUS
- DMLO keypads (KEY0-KEY9)
 - DBKEY
 - DIRECT-DBKEY
- Figurative constants
 - SPACES
 - ZEROS
 - LOW-VALUES
 - HIGH-VALUES
- Literals of all types
 - Alpha
 - Numeric
 - Hex
 - database key
 - full word

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PRINT

Print the complete current formatted display or the currently displayed screen

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PRINT COMMAND

PRINT [ALL] [optional-heading]

Where:

ALL--Print the complete current formatted display

optional-heading--An optional heading line



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PRINT Rules

- A valid PRINT command causes one of the following messages:
 - **PRINT SUCCESSFUL (self explanatory)**
 - **PRINT ERROR (open or allocation error)**
- If no message occurs, the PRINT command is in an unsupported environment
- DMLO does not verify that the current formatted display matches the actual contents of the database.
- RECORDs with field modifications not stored or modified on the database will be printed as is
- PRINT can be issued only from screens which have a command line area



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READYLIST

- Displays the AREA Selection screen
- Is the same as the SHOW AREA command

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SAVE

- Display the PROFILE Save screen for intermediate PROFILE saves

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SET

Set various session values

- AUTOBIND
- AUTOHEX
- CLIST
- CMDDISPLAY
- COBDISPLAY
- DEFENTK
- EXIT
- HEX/NATIVE
- INVCHAR
- LOWERCASE
- LRF
- MAPIN
- MENU



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SHOW

- Display various session parameters and subschema entities:
 - AREANAMES
 - EQUATES
 - KEYPADS
 - OPTIONS
 - PFKEYS
 - RECORDNAMES
 - SCRATCH
 - SETNAME
 - VARIABLES



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CLIST Commands

- EDIT: Creates a CLIST
- EXEC: Executes a CLIST
- LISTC: Accesses the CLIST selection/maintenance screen
- LEARN: Activate LEARN MODE during CLIST Step Mode execution



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Termination

- Sessions can be terminated by entering:
 - FINISH command
 - ROLLBACK command without the CONTINUE option.
- The PROFILE Save Screen is displayed if SAVE/NOSAVE option has not been set
- If a SAVE/NOSAVE option was specified, then the PROFILE is either saved or not depending on the value



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Profile Save Screen

- This screen allows:
 - The creation of a new PROFILE
 - The update of the active PROFILE
- For sessions with no PROFILE, a name must be entered for the SAVE to work
- For PROFILES loaded at session startup, the PROFILE name will appear on this screen.
- The name can be changed to create a new PROFILE based on the settings in place at session termination.
- Optionally, only selected PROFILE components will be updated if a 'Y' is entered next to one or more items



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Profile Save Screen Example

```

===== DML / ONLINE RELEASE nn.nn =====
SAVE SESSION PARAMETERS AS          ==> EMPPROF
SELECT/EXCLUDE (Y/N) ITEMS TO BE SAVED :
      SIGNON SCREEN VALUES ==> Y
      BIND/READY OPTIONS   ==> Y
      PF KEY SETTINGS      ==> Y
      EQUATE SETTINGS      ==> Y
AND PRESS ENTER TO SAVE   OR   PRESS PA1 TO BYPASS FUNCTION

15012 ERROR-STATUS 0000 RETURNED FROM FINISH
ALL RIGHTS RESERVED
===== Computer Associates International, Inc. ===== (C) 2003
  
```



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Equating DMLO DML to Batch programming DML

DMLO

Batch Cobol

SIGNON =====>	BIND subschema
BIND records	BIND records
READY areas	READY areas
DML & DMLO commands =====>	Body of program
FINISH/ROLLBACK	FINISH/ROLLBACK
PROFILE save =====>	STOP RUN



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Menu Assist Mode – just a quick mention

- Allows less experienced programmers a facility to access the database without needing detailed knowledge of DML syntax
- More structured environment
- Allows shorthand commands
- See manual for more information



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Securing Things

Things Operations, Security Architects, and/or Auditors worry about (production issues)

- People seeing things they aren't allowed to see
- People touching things they aren't allowed to touch
- People breaking things
- Knowing what was touched by whom and when, even if it's OK to touch (Audit trail)



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Available Security Controls

- Native CA IDMS Security
 - Task, Program, Subschema
- DMLO - Access Security
 - Level 1 – No DMLO checking
 - Level 2 – User/Password
 - Level 3 – Subschema Registration
- DMLO - READY Restrictions
 - Global
 - Per User (requires Level 2 or 3 Access turned on)
- DMLO - Excluded Subschemas
- DMLO – User Exit
 - Could be used to log an audit trail
 - Could be used to enforce site-specific security
- Manual controls/logging

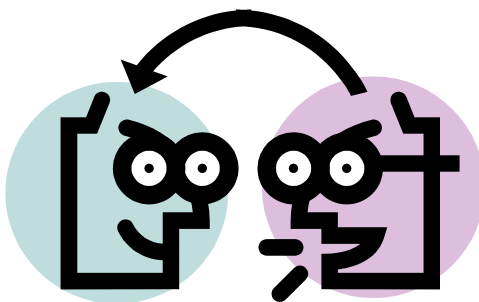


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One Final Thought.....



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WALKING DOWN A FREEWAY

- Your DMLO session is “conversational”
- ALL record locks are held while DMLO is waiting for you to give it the next DML command to execute
- MANY shared (currency) locks will be held over multiple terminal interactions
- ALL update/longterm locks are held until you issue a FINISH/COMMIT/ROLLBACK
- This means you look more like a batch job than an online task to the rest of the traffic inside CA IDMS
 - If you hold on to too many locks in a production environment, you MAY cause delays or deadlocks to production work, especially in a busy system



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Further Information

- CA IDMS™ DML Online User Guide Version 18.5
- CA IDMS® Installation and Maintenance Version 18.5
 - CA IDMS Tools Runtime Option
 - z/OS Appendix F
 - z/VSE Appendix D
 - CA IDMS DMLO Security and Access Considerations
 - z/VSE Appendix E
 - Installing CA IDMS DMLO on Multiple CVs under CICS
 - z/VSE Appendix E



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Questions & Answers