

Understanding the Dictionaries that Drive Your CA IDMS Applications

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Abstract

- A primer on the evolution of the dictionary (including catalogs), its functions, benefits of cross referencing, multiple dictionaries as well as maintaining, reporting and locking down the dictionary resource.

Biography

- Joined Cullinane Corp in Atlanta, GA in 1980
- Cullinet Technical Support and CA Field Services for over 20 years
- Independent Remote CA-IDMS Support and Implementation Services since 2001 in SF Bay Area
- Specialize in installations, migrations and problem determination in Z/OS, Z/VM, and Z/VSE



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Agenda

- 1 HISTORY OF THE CA IDMS DICTIONARY
- 2 WHAT THE DICTIONARY DOCUMENTS AND CONTROLS
- 3 DICTIONARY AND CATALOG CONFIGURATIONS
- 4 MAINTAINING YOUR DICTIONARY
- 5 CROSS REFERENCING AND REPORTING



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History of the CA IDMS Dictionary

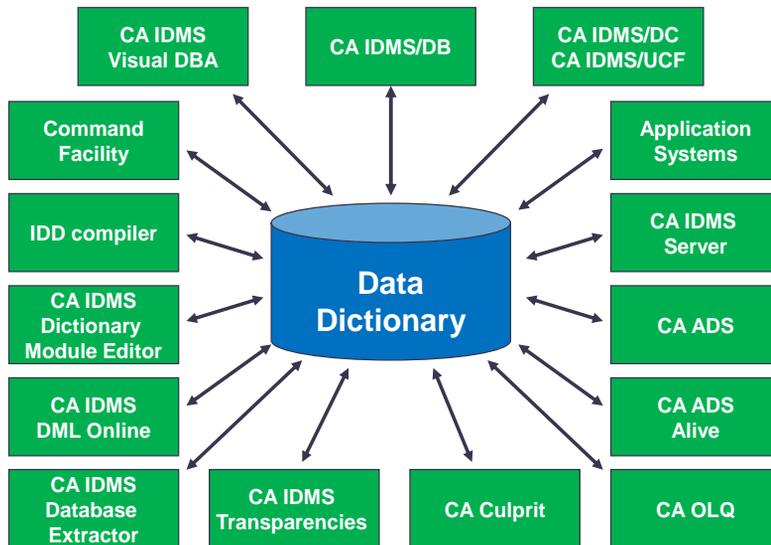
- Started out as a 'Directory'
 - Database definitions
 - Schema, subschema, DMCL
 - Manual assembly at first, then schema compiler
- IDD - Integrated Data Dictionary
 - First active dictionary
 - Set of compilers
 - System definitions
 - Application definitions
 - ADS process code
 - Load area

History of the CA IDMS Dictionary Catalog

- Added in CA IDMS 12.0
- Physical database definitions
 - Logical physical separation
- SQL definitions
 - Tables, views, constraints, access plans
- User definitions
 - Centralized security
- New command facility tool
 - OCF/IDMSBCF

What the Dictionary Documents and Controls

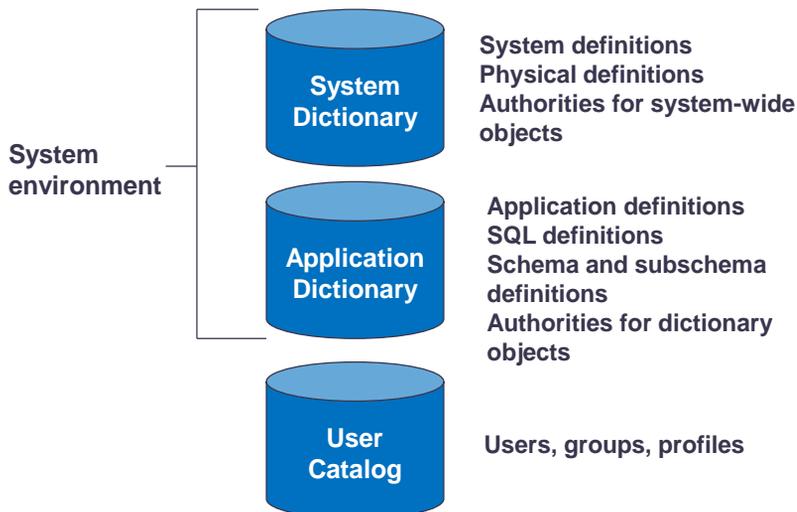
Data Dictionary Integration



What the Dictionary Documents and Controls

Entities	Examples
Basic Entities	Records, elements, processing modules
Network database entities (logical)	Schemas, subschemas
SQL-defined database entities	Table, constraints
Physical database entities	Segment, database name table, DMCL modules
Teleprocessing entities	Logical terminals, physical terminals, tasks
Security entities	Users, profiles
Special-purpose entities	User-defined, site-specific entities

Dictionary Structure



System Dictionary

System.
DDLDMML

Source: CV/DC Sysgens
Teleprocessing entities
CA defined programs

System.
DDLDCLOD

Object: DC Runtime tables

System.
DDLDCLOG

Log: Statistics

System.
DDLDCRUN

Queue Records

System.
DDLDCSCR

Scratch Records



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System Catalog

Catsys.
DDLDCAT

Source: DMCLs
Segments (Areas, Files)

Catsys.
DDLDCATX

Index for: DMCLs
Segments

Catsys.
DDLDCATLOD

Object: DMCLs
DB Tables



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Other Dictionary Areas - shared



User catalog

- User information
 - Passwords
 - Group definition



Message catalog

- System/user messages

Application Dictionary



Source:
Schemas, Subschemas,
Basic Entities, Programs,
Applications



Load Modules:
Subschemas, Maps, Dialogs,
Code/Edit tables

Application Catalog



Source: SQL defined database
Segments
Entities – Tables, Views, etc
Relational Command Modules



Indexes for SQL entities



Object: Access Modules

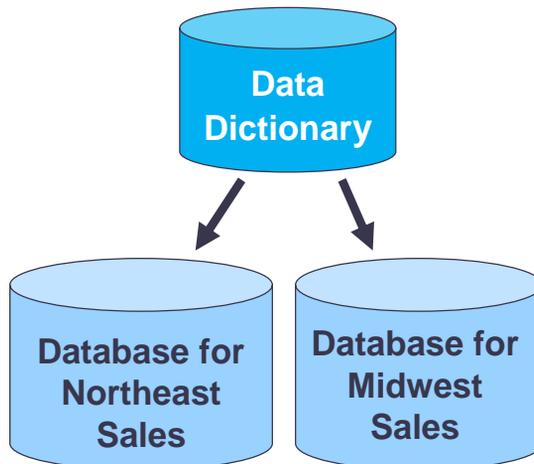
Dictionary and Catalog Configurations

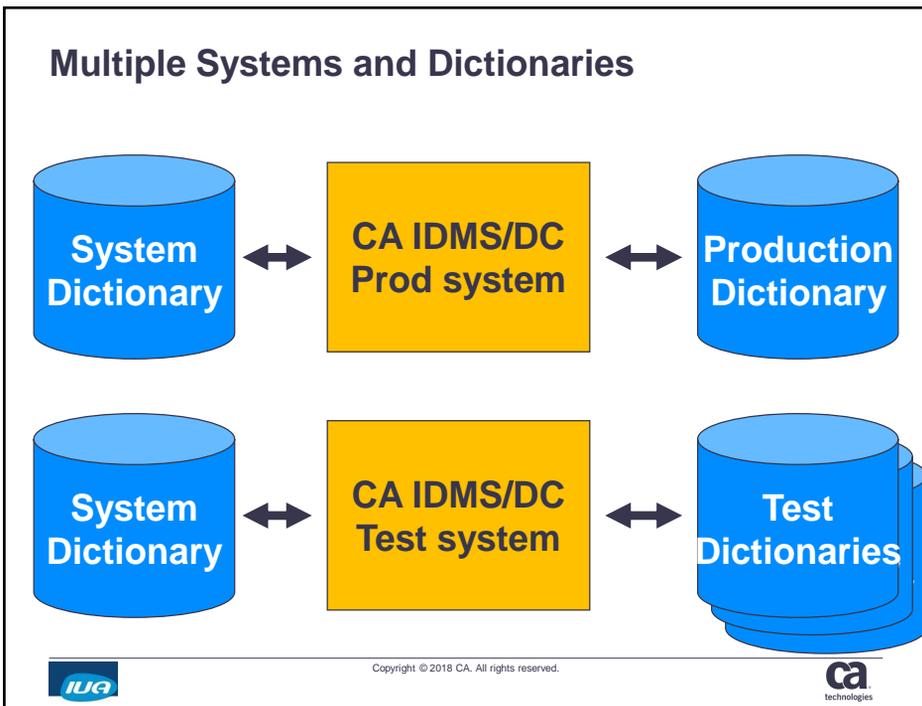
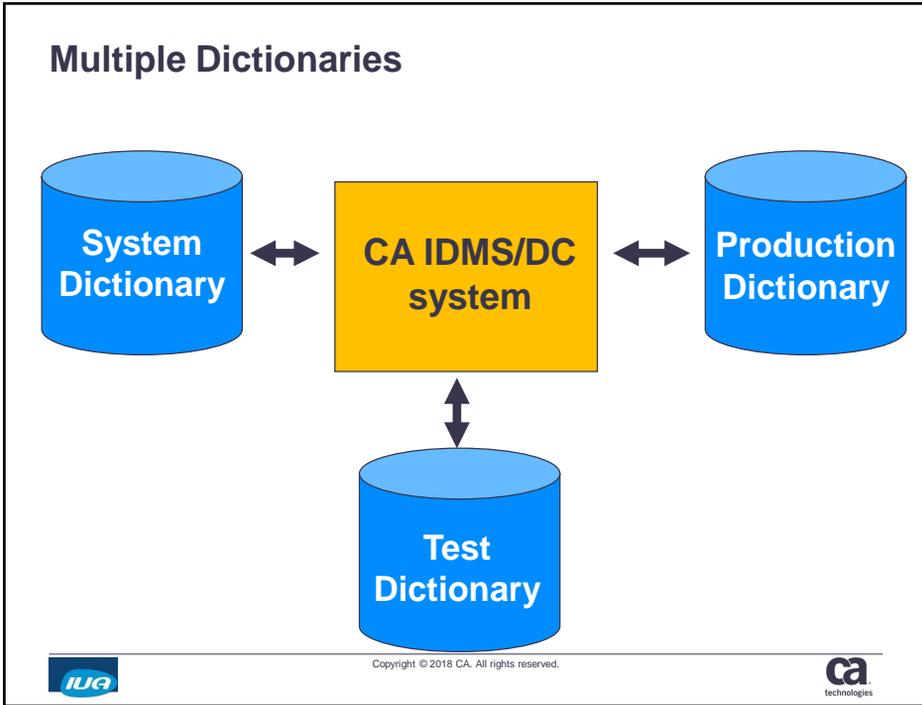
Simple CA IDMS Environment



One Dictionary, One System, and One Database

Multiple Databases, Single Dictionary





Multiple Dictionaries and Catalogs

- Distinguish multiple dictionaries by DICTNAME (DBTable)
- System, Reporting, and Application Dictionaries
- Test, QA and Production
- Single SYSTEM catalog
 - Physical definitions
- Keep dictionaries & catalogs in sync for applications
 - Application catalogs for CA IDMS SQL applications
 - Application dictionaries for network applications



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Maintaining Your Dictionary

Maintaining the Dictionary

- Dictionary is a database: subschema IDMSNWKU
- Can use standard IDMS utilities
- No change in DDLDDL structure since release 16.0
- Learn and utilize a migration tool to ensure 'legit' migrations
- Can develop your own dictionary applications
- IDMSDIRL



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Maintaining the Catalog

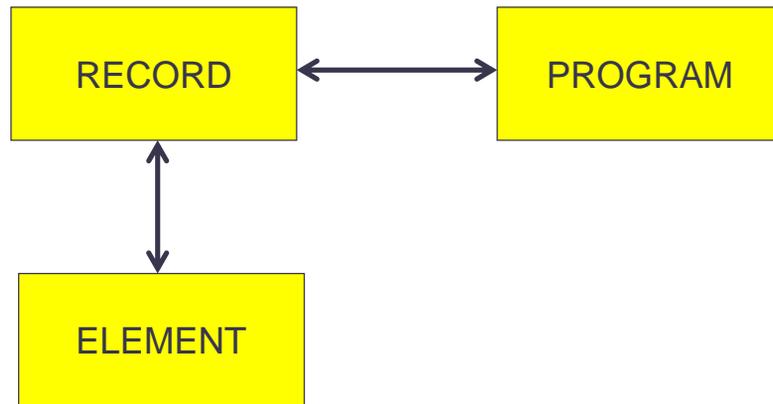
- Catalog is a database
 - DDLCAT & DDLCATX – IDMSCATZ
 - DDLCATLOD - IDMSCATL
- Can use standard IDMS utilities
- Structure changes: CONVERT CATALOG every release
- Because of timestamps, keep in sync with data areas
 - Migrate together
 - Backup / Restore
- Keep statistics current: UPDATE STATISTICS
- Migrate RCM with programs & dialogs, regenerate AM



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Dictionary as a Database



Security

- Dictionary has its own security
- Securing through SET OPTIONS FOR DICTIONARY
- 'Master' userid and password
- Allows you establish user authority at the application level
 - IDD, ADS, OLQ, Culprit...
- Important to Grant access to appropriate users

Cross Referencing and Reporting

Cross Referencing

- Before changing an entity, display to see its relationships
- Pre-compiler updates automatic IF:
 - Activity logging on
 - Dictionary in update mode
- Where used information
- Integrity issues
 - Careful of deletes (cascading) and drops

DDDL Reporting -- DISPLAY Entity

- DISPLAY *entity*
 - For records, elements, programs, etc
- DISPLAY ALL *entity*
- This statement:

```

DISPLAY RECORD EMPLOYEE
    WITH ALL COBOL
    AS SYNTAX
    VERB REPLACE.
    
```



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DDDL Reporting -- DISPLAY Entity

- Will produce the following output:

```

REPLACE
RECORD NAME IS EMPLOYEE VERSION IS 1
*+   DATE CREATED IS      10/22/98           <- HISTORY
*+   TIME LAST UPDATED IS 15344671          <- HISTORY
*+   PREPARED BY DBA                               <- HISTORY
*+   RECORD LENGTH IS 40                          <- DETAILS
    PUBLIC ACCESS IS ALLOWED FOR ALL             <- USERS
    RECORD NAME SYNONYM IS EMPLOYEE VERSION 1    <- SYNONYMS
    RECORD NAME SYNONYM IS EMPL VERSION 1        <- SYNONYMS
        LANGUAGE IS FORTRAN
    COMMENTS 'SAMPLE IDD RECORD'                <- COMMENTS
    .
    02 EMPLOYEE-NAME                               <- COBOL
        PICTURE IS X(20)  USAGE IS DISPLAY
        ELEMENT NAME SYNONYM IS EMPNM           <- SYNONYMS
            FOR RECORD SYNONYM EMPL VERSION 1.
    ...
    
```



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DDDL Reporting -- DISPLAY Program

```
DIS PROGRAM CEPPGM
*+  ADD
*+  PROGRAM NAME IS CEPPGM VERSION IS 1
*+    DATE CREATED IS      05/29/15
*+    DATE LAST COMPILED IS 05/29/15
*+    NUMBER OF TIMES COMPILED IS 3
*+    PUBLIC ACCESS IS ALLOWED FOR ALL
*+    ESTIMATED LINES ARE 24
*+    PROGRAM CALLED IS IDMSCOBI VERSION IS 1
*+    PROGRAM CALLED IS ABORT VERSION IS 1
*+    MODULE USED CARLAM VERSION IS 1
*+    RECORD COPIED SUBSCHEMA-CTRL VERSION IS 1
*+    RECORD COPIED EMPLOYEE VERSION IS 100
*+    RECORD COPIED DEPARTMENT VERSION IS 100
*+    SUBSCHEMA IS EMPSS01 OF SCHEMA EMPSCHM VERSION IS 100
*+    DC OPTION IS (
*+      ...
*+      LANGUAGE IS COBOL
*+      PROGRAM
*+    )
*+    MODE IS IDMS-DC
*+    LANGUAGE IS COBOL
```



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Reporting on your dictionary

- Standard CA Culprit reports provided
 - Installed in SYSDIRL dictionary
 - Customizable
- DREPORTS
 - Standard dictionary and cross-reference reports
 - Detail, key or summary
- CREPORTS
 - DC/UCF System reports
 - SYSGEN source and object reports
- AREPORTS
 - CA ADS reports
 - Dialogs and their components



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Sample Cross Reference Report

- IDMS Record activity report

```

REPORT NO. 28          DATA DICTIONARY REPORTER REL nn.n    mm/dd/yy    PAGE    1
DREPORT 028          IDMS RECORD ACTIVITY REPORT
*****
----- D A T E -----
SCHEMA  VER  SUBSCHEMA  RECORD          PROGRAM  VER  USAGE          TIMES  COMPILED  CREATED
*****
EMPSCHM  1  AD99SLR  COVERAGE      LRDA01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  AD99SLR  DEPARTMENT    LRDA01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  AD99SLR  EMPLOYEE      LRDA01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  AD99SLR  OFFICE        LRDA01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  EMPSSLR  DEPARTMENT    LRTD01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  EMPSSLR  EMPLOYEE      LRTD01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  EMPSSLR  EMPLOYEE      RENO01D  1  BIND           1 mm/dd/yy mm/dd/yy
EMPSCHM  1  EMPSSLR  EMPLOYEE      RENO01D  1  OBTAIN         2 mm/dd/yy mm/dd/yy
EMPSCHM  1  EMPSSLR  EMPLOYEE      RENO02D  1  BIND           1 mm/dd/yy mm/dd/yy
    
```



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Summary

- Dictionaries (and Catalog) are the crucial 'hub' to IDMS
- System & Application Dbnames – different roles
- Keep updated when new releases introduce changes
- Maintain like any database, as needed
- Keep catalogs in sync with data areas
- Use reports to track activity & cross-reference



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Questions & Answers

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- Session Number:** A field for entering the session number.
- Name (Optional):** A field for entering the respondent's name.
- Session Title:** A field for entering the session title.
- Rate the overall session:** A row of three checkboxes labeled "Fair", "Good", and "Excellent".
- Rating Scale:** A table with five columns: "Strongly Disagree", "Disagree", "Neutral", "Agree", and "Strongly Agree".
- Statement 1:** "The speaker was prepared and knowledgeable of the subject matter." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the first statement.
- Statement 2:** "The session met my expectations." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the second statement.
- Statement 3:** "The material is related to my current job." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the third statement.
- Statement 4:** "Overall, I recommend this session to a colleague." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the fourth statement.
- Statement 5:** "The session length was appropriate for the content." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the fifth statement.
- Statement 6:** "This session would be useful as a reference." with a row of five checkboxes.
- Comments:** A text area for providing feedback on the sixth statement.
- General Comments:** A section with several horizontal lines for providing overall feedback.