



IMS Buzz - Mardi 10 Avril

IMS Explorer for Dev Presentation & Demo








Agenda

- **IMS Explorer Overview**
- **DBD and PSB Graphical View**
- **IMS Explorer connecting to ODBM**
- **IMS Explorer using the IMS Catalog**



IMS Application Development Challenges

-  Shrinking knowledge base around IMS & hierarchical data base model
-  Difficult to find DLI programmers
-  Fewer experienced COBOL and PL/I programmers
-  Lack of integrated development solutions and tools
-  Difficult to test and deploy applications



Introducing IMS Explorer for Development...

Simplifying IMS application development!

- **Easier visualization and editing of IMS Database and Program (PSB) Definitions**

- Provide graphical editors to:
 - Display IMS database hierarchical structures
 - Display/create/edit PSBs
 - Change/add fields on a DBD
- Import COBOL copybooks and PL/I data structures to a database segment*
- Generate DBD and PSB source
- Generate metadata needed by Java applications and for SQL access from Explorer

- **Ability to easily access IMS data using SQL statements**

- Leveraging IMS 11 Universal JDBC driver and Open Database

- **Connectivity to the z/OS system**

- Browse a Data Set and submit JCL
- Import and export DBD and PSB source files from a Data Set to the IMS Explorer, and vice-versa

****Requires RDz 8.0 or later***

Displaying an IMS Database Structure via “Green Screen”

```

EDIT          IMS.V11.DBDC.SDFSISRC (DFS AUTDB) - 01.00          Columns 00001 00072
Command ==> _____
008500      FIELD NAME= SALDATE, BYTES=8, START=33, TYPE=C
008600      FIELD NAME= LASTNME, BYTES=25, START=41, TYPE=C
008700      SEGM  NAME= SALESPE,                               X
008800      PARENT= ( (DEALER, ) , (EMPL, PHYSICAL, EMPDB2) ) ,   X
008900      BYTES=6,                                           X
009000      POINTER= (LPARNT, LTWINBWD, TWINBWD) ,             X
009100      RULES= (VVV)
009200      FIELD NAME= (EMPNO, SEQ, U) , BYTES=6, START=1, TYPE=C (LPK)
009300      SEGM  NAME= SALESINF, PARENT= SALESPE, BYTES=15
009400      FIELD NAME= QUOTA, BYTES=5, START=1, TYPE=C
009500      FIELD NAME= SALESYTD, BYTES=5, START=6, TYPE=C
009600      FIELD NAME= COMSSION, BYTES=5, START=11, TYPE=C
009700      DBDGEN
009800      FINISH
009900      END
***** ***** Bottom of Data *****
  
```

Logical relationship
in DBD source

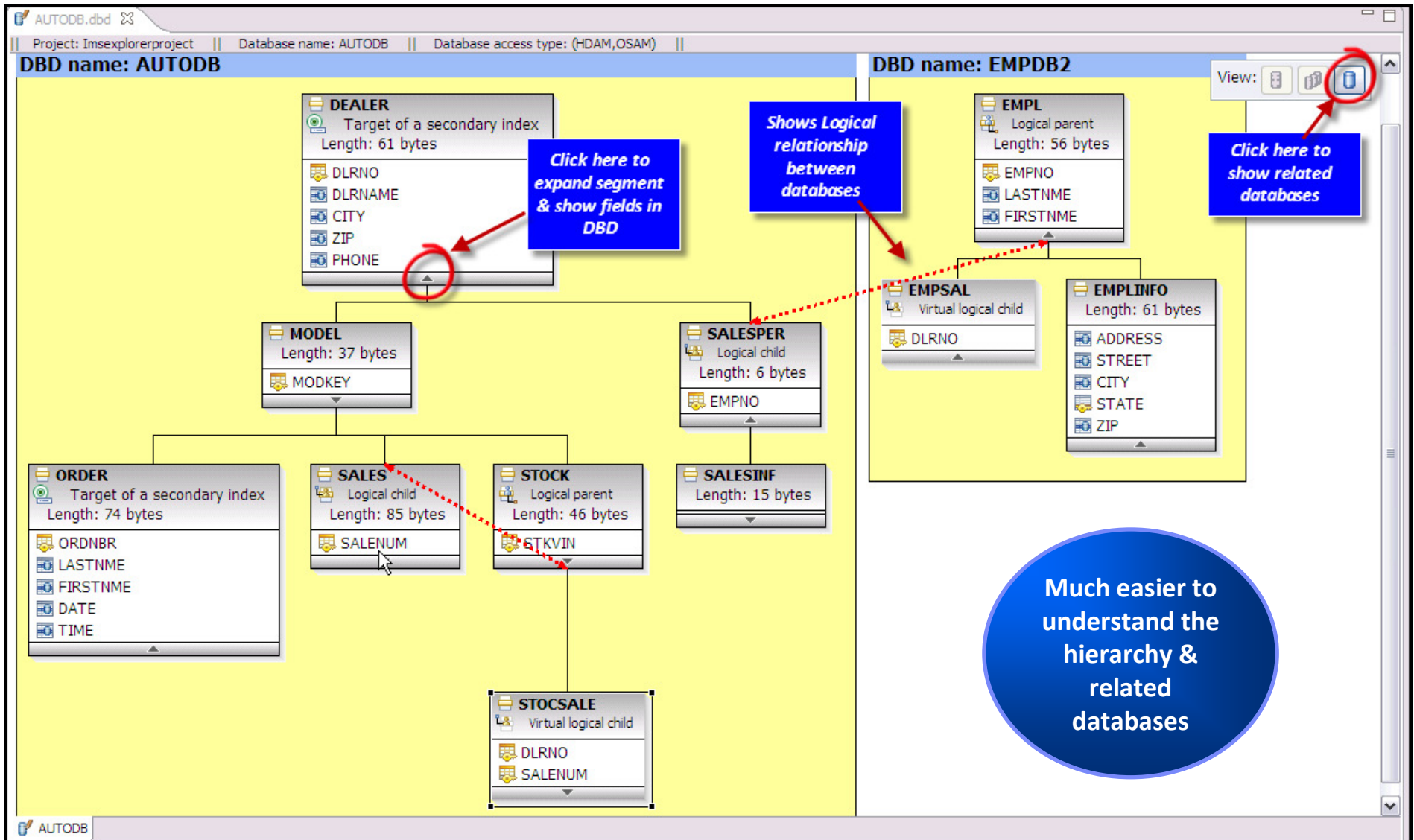
Understanding a
database by
reading its source
isn't easy for
newcomers to IMS

Displaying an IMS Database Structure with IMS Explorer

The screenshot shows the IMS Explorer interface with the following components:

- Project Explorer (Left):** A tree view showing the project structure. The 'AUTODB.dbd' file is selected under the 'DBD' folder.
- Header (Top):** Displays 'Project: SA Visit', 'Database name: AUTODB', and 'Database access type: (HDAM,OSAM)'.
- Main Area (Right):** Displays the database structure for 'DBD name: AUTODB'.
 - DEALER** (Length: 61 bytes): Target of a secondary index. Attribute: DLRNO.
 - MODEL** (Length: 37 bytes): Attribute: MODKEY.
 - SALES** (Length: 85 bytes): Logical child. Attribute: SALENUM.
 - STOCK** (Length: 46 bytes): Logical parent. Attribute: STKVIN.
 - ORDER** (Length: 74 bytes): Target of a secondary index. Attribute: ORDNBR.
 - SALESIN** (Length: 15 bytes): Attribute: EMPNO.
 - SALESIN** (Length: 15 bytes): Logical child. Attribute: EMPNO.
 - STOCSALE** (Virtual logical child): Attributes: DLRNO, SALENUM.

Much easier to understand the database structure



Displaying an IMS Database Structure with IMS Explorer...

DBD name: AUTODB

- DEALER** (Target of a secondary index, Length: 61 bytes)
 - DLRNO
 - DLRNAME
 - CITY
 - ZIP
 - PHONE
- MODEL** (Length: 37 bytes)
 - MODKEY
 - MODTYPE
 - MAKE
- SALESER** (Logical child, Length: 6 bytes)
 - EMPNO

DBD name: EMPDB2

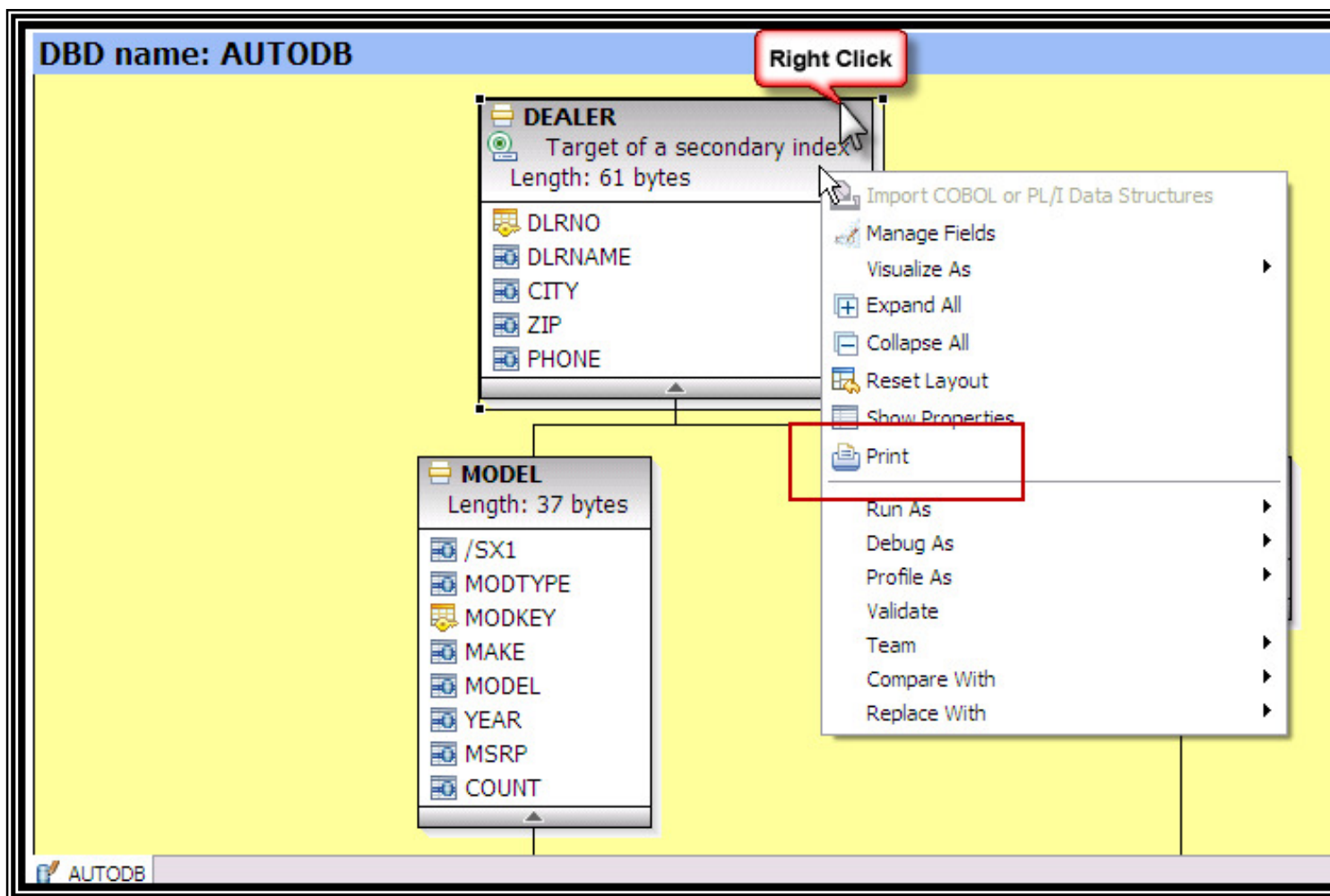
- EMPL** (Logical parent, Length: 56 bytes)
 - EMPNO
 - LASTNAME
 - FIRSTNAME
- EMPSAL** (Virtual logical child)
 - DLRNO
- EMPLINFO** (Length: 61 bytes)
 - STATE

Properties

Property	Value
1 - Segment (SEGM)	
Alias (EXTERNALNAME)	SALESER
Character encoding (ENCODING)	
Data Capture exit routines (EXIT)	
Length (BYTES)	6
Parent segment (PARENT)	((DEALER),(EMPL,PHYSICAL,EMPDB2))
Pointers (POINTER)	(TWINBWD,LTWINBWD,LPARNT)
Remarks (REMARKS)	
Rules for segment insert, delete, and replace (RULES)	(VVV,LAST)
Segment Edit/Compression exit routine (COMPRTN)	

Type of relationship is shown in Properties

Printing a Copy of the Visual Layout



To Print
the
Layout

1. Right Click
within the
diagram.

2. Then select
"Print" from
the drop down
box.

PSB and PCB Definitions via “Green Screen”

```

IMS.V11.DBDC.SDFSISRC (DFS AUT11) - 01.00          Columns 00001 00072
d ==> _____ Scroll ==> CSR
AUTS2PCB PCB TYPE=DB, DBDNAME=AUTO1DB, PROCOPT=GRP, KEYLEN=64, X
          PROCSEQ=SINDEX22
          SENSEG NAME=DEALER, PARENT=0
          SENSEG NAME=MODEL, PARENT=DEALER
          SENSEG NAME=STOCK, PARENT=MODEL

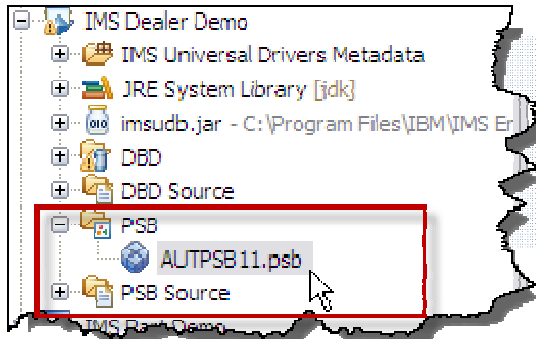
*
AUSI2PCB PCB TYPE=DB, DBDNAME=SINDEX22, PROCOPT=GRDP, KEYLEN=28
          SENSEG NAME=SINDXB, PARENT=0

EMPLPCB PCB TYPE=DB, DBDNAME=EMPLDB2, PROCOPT=AP, KEYLEN=10
          SENSEG NAME=EMPL, PARENT=0
          SENSEG NAME=DEALER, PARENT=EMPL
          SENSEG NAME=SALESINF, PARENT=DEALER
          SENFLD NAME=QUOTA, START=1
          SENFLD NAME=SALESYTD, START=7
          SENSEG NAME=EMPLINFO, PARENT=EMPL
          PSBGEN PSBNAME=AUTPSB11, LANG=JAVA
          END

```

Typical
Green Screen
Display of
PCB Definitions
within a PSB

Building a PCB definition with IMS Explorer



1. **Click the required PSB.**
2. **Then select the required PCB.**
3. **Then select “Edit data sensitivity ...” on the right.**

AUTODB.dbd AUTPSB11.psb

Project: IMSExplorerProject PSB name: AUTPSB11

Full-function or Fast Path database PCB statement (TYPE=DB)
 The PCB statement describes a PCB for a DL/I or a Fast Path database. [Learn more...](#)

PCB Nu...	PCB Na...	DBDNA...	PROC...	SB	KEYLEN	POS	PROCS...	VIEW=...	LIST	PSELOPT	ACCESS
1	AUTOL...	AUTOLDB	AP	No	100	Single		No	Yes		
2	AUTS1P...	AUTOLDB	GRP	No	100	Single	SINDEX11	No	Yes		
3	AUTS2P...	AUTOLDB	GRP	No	64	Single	SINDEX22	No	Yes		
4	AUSI2PCB	SINDEX22	GRDP	No	28	Single		No	Yes		
5	EMPLPCB	EMPLDB2	AP	No	10	Single		No	Yes		

Buttons: Add... Edit... Remove Edit data sensitivity...

Tooltip: Edit the segment and field sensitivity for the selected PCB.

To Display the PCB Graphically and Optionally edit sensitivity

Building a PCB definition with IMS Explorer ...

Project: IMSExplorerProject || PSB name: AUTPSB11

PCB name: EMPLPCB All Segments (Edit Sensitivity)

1 Deselect these two fields

- EMPL Length: 56 bytes
- EMPNO
- LASTNAME
- FIRSTNAME

- DEALER Length: 60 bytes
 - DLRNO
 - DLRNO
 - DLRNAME
 - CITY
 - ZIP
 - PHONE
- EMPLINFO Length: 61 bytes
 - STATE
 - ADDRESS
 - STREET
 - CITY
 - ZIP
- SALESINF Length: 15 bytes
 - QUOTA
 - SALESYTD
 - COMSSION

2 The Senfld shows in the "Generated Source"

Project Explorer | AUTPSB11

Generated Source | AUTPSB11

```

LIST=YES
SENSEG NAME=SINDXB,
PARENT=0
EMPLPCB PCB TYPE=DB,
DBDNAME=EMPLDB2,
PROCOPT=AP,
SB=NO,
KEYLEN=10,
POS=SINGLE,
ACCESS=DR,
LIST=YES
SENSEG NAME=EMPL,
PARENT=0
SENFLD NAME=EMPNO,
START=1,
REPL=YES
SENSEG NAME=DEALER,
PARENT=EMPL
SENSEG NAME=SALESINF,
PARENT=DEALER
SENFLD NAME=QUOTA,
START=1,
REPL=YES
SENFLD NAME=SALESYTD,
START=7,
REPL=YES
SENSEG NAME=RMPLTINFO,
PARENT=EMPL
PARENT=AU
  
```

Building a PCB definition with IMS Explorer ...

Project Explorer

- IMSE ExplorerProject
 - IMS Universal Drivers Metadata
 - JRE System Library [jdk]
 - imsudb.jar - C:\Program Files\IBM\IMS Enterprise Suite Explorer for Development
 - DBD
 - DBD Source
 - PSB
 - AUTPSB11.psb
 - DFSIVP37.psb
 - DFSSAM09.psb
 - PSB Source
 - Generated Source
 - AUTPSB11
 - DFSIVP37
 - DFSSAM09
 - Imported Source
 - AUTPSB11
 - DFSIVP37
 - DFSSAM09
 - Script1.sql
 - SelectPB.sql
 - SelectPhone.sql
 - Test

Compare (IMSE ExplorerProject/PSB Source/Generated Source/AUTPSB11' - 'IMSE ExplorerProject/PSB Source/Imported Source/AUTPSB11')

Text Compare

IMSE ExplorerProject/PSB Source/Generated Source/AUTPSB11	IMSE ExplorerProject/PSB Source/Imported Source/AUTPSB11
ACCESS=DB, LIST=YES	SENSEG NAME=SALES, PARENT=MODEL
SENSEG NAME=SINDXB, PARENT=0	SENSEG NAME=STOCK, PARENT=MODEL
EMPLPCB PCB TYPE=DB, DBDNAME=EMPLDB2, PROCOPT=AP, SB=NO, KEYLEN=10, POS=SINGLE, ACCESS=DB, LIST=YES	SENSEG NAME=STOCSALE, PARENT=STOCK
SENSEG NAME=EMPL, PARENT=0	SENSEG NAME=SALESPER, PARENT=DEALER
SENFLD NAME=EMPNO, START=1, REPL=YES	SENSEG NAME=SALESINF, PARENT=SALESPER
SENSEG NAME=DEALER, PARENT=EMPL	SENSEG NAME=EMPLINFO, PARENT=SALESPER
SENSEG NAME=SALESINF, PARENT=DEALER	AUTS1PCB PCB TYPE=DB, DBDNAME=AUTOLDB, PROCOPT=GRP, SB=NO, PROCSEQ=SINDEX11
SENFLD NAME=QUOTA, START=1, REPL=YES	SENSEG NAME=ORDER, PARENT=0
SENFLD NAME=SALESYID, START=7, REPL=YES	SENSEG NAME=MODEL, PARENT=ORDER
SENSEG NAME=EMPLINFO, PARENT=EMPL	SENSEG NAME=DEALER, PARENT=MODEL
PSBGEN PSBNAME=AUTPSB11, LANG=JAVA,	SENSEG NAME=STOCK, PARENT=MODEL
	AUTS2PCB PCB TYPE=DB, DBDNAME=AUTOLDB, PROCOPT=GRP, PROCSEQ=SINDEX22
	SENSEG NAME=DEALER, PARENT=0
	SENSEG NAME=MODEL, PARENT=DEALER
	SENSEG NAME=STOCK, PARENT=MODEL
	AUSI2PCB PCB TYPE=DB, DBDNAME=SINDEX22, PROCOPT=GRP, SENSEG NAME=SINDXB, PARENT=0
	EMPLPCB PCB TYPE=DB, DBDNAME=EMPLDB2, PROCOPT=AP, SENSEG NAME=EMPL, PARENT=0
	SENSEG NAME=DEALER, PARENT=EMPL
	SENSEG NAME=SALESINF, PARENT=DEALER
	SENFLD NAME=QUOTA, START=1
	SENFLD NAME=SALESYID, START=7
	SENSEG NAME=EMPLINFO, PARENT=EMPL
	PSBGEN PSBNAME=AUTPSB11, LANG=JAVA
	END

Context Menu:

- New
- Show In Alt+Shift+W
- Open F3
- Copy Ctrl+C
- Copy Qualified Name
- Paste Ctrl+V
- Delete Delete
- Build Path
- Move...
- Rename... F2
- Import...
- Export...
- Refresh F5
- Validate
- Show in Remote Systems view
- Run As
- Debug As
- Profile As
- Team
- Compare With
- Replace With

Compare With Sub-menu:

- Each Other
- Local History...

Compare the "Imported" & "Generated" source

1. The Senfld shows in the "Generated Source"



Displaying an IMS Database's contents with DFSDDLTO

```
$DDLTO NEWJCL F1 V 80 Trunc=80 Size=96 Line=25 Col=1 Alt=0
====>
00022 U *****
00023 WT0 Start of the DDLTO stream
00024 U status card has all 1's so all tracing is ON.
00025 U status card has 00002 so we use the second PCB in the PSB
00026 S 1 1 1 1 1 00002
00027 WT0 Now doing GN through the database
00028 L GN
00029 E DATA KAA11**K1*
00030 E 01 K1 0005KAA11
00031 L GN
00032 E DATA KBBB11**K2
00033 E 02 K2 0011KAA11KBBB11
00034 L GN
00035 E DATA KAA31KEE31K31311131213131314131513KEE31K5R31
00036 E 03 K3K5 0021KAA11KBBB11KAA31KEE31
00037 L GN
00038 E DATA KAA31**K1*
00039 E 04 K1X 0026KAA11KBBB11KAA31KEE31KAA31
00040 L GN
00041 E DATA KAA31KEE32K31321132213231324132513KEE32K5R32
PF 1 FIG 2 SCREEN 2 3 QUIT 4 FILE 5 REPEAT 6 ADD
PF 7 BACKWARD 8 FORWARD 9 XFILE 10 LEFT 11 RIGHT 12 JOIN
```


Displaying an IMS Database with IMS Explorer

The screenshot displays the IMS Explorer application window. The main area shows a SQL query in the SQL Builder:

```
SELECT PCB01.STOKSTAT.PARTROOT_PARTKEY, PCB01.STOKSTAT.UNPLREQMTS,
PCB01.STOKSTAT.UNIT, PCB01.STOKSTAT.DEPT, PCB01.STOKSTAT.UNITPRICE,
PCB01.STOKSTAT.CURRENTREQMTS, PCB01.STOKSTAT.UNPLDISB, PCB01.STOKSTAT.STKCIDATE,
PCB01.STOKSTAT.STOCKEY, PCB01.STOKSTAT.AREA, PCB01.STOKSTAT.ONORDER,
PCB01.STOKSTAT.DIV, PCB01.STOKSTAT.INSTOCK, PCB01.STOKSTAT.PROJ,
PCB01.STOKSTAT.PLANDISB, PCB01.PARTROOT.PART, PCB01.PARTROOT.PARTDESC,
PCB01.PARTROOT.PARTKEY
FROM PCB01.STOKSTAT, PCB01.PARTROOT
ORDER BY PCB01.STOKSTAT.PARTROOT_PARTKEY ASC
```

Below the query, two table selection panels are visible: **STOKSTAT** and **PARTROOT**. The **STOKSTAT** panel has checkboxes for PARTROOT_PA, UNPLREQMTS, UNIT, and DEPT. The **PARTROOT** panel has checkboxes for PART, PARTDESC, and PARTKEY.

The bottom section of the interface shows a table with the following columns: PARTROOT_PARTKEY, UNPLREQMTS, UNIT, DEPT, UNITPRICE, CURRENTREQMTS, UNPLDISB. The data rows are as follows:

	PARTROOT_PARTKEY	UNPLREQMTS	UNIT	DEPT	UNITPRICE	CURRENTREQMTS	UNPLDISB
1	0210681293P009	200	0000	59	0.000	1055	22
2	0210681293P009	0	0000	59	0.000	0	1
3	0210681293P009	0	59	0.182	320	0	0
4	02250236-001	200	0000	59	0.000	410	38
5	02250236-001	0	0000	59	0.000	0	10
6	02250236-001	0	59	0.367	72	0	0
7	02250239	0	59	0.650	68	2	0
8	02250794	0	0000	59	0.000	3	64
9	02250794	0	0000	59	0.000	0	80
10	02250794	0	59	0.174	390	0	0
11	02250796	0	0000	59	0.000	1	2
12	02250796	0	59	1.535	20	0	0

Annotations on the image:

- SQL Builder with content assistance to build a SQL statement**: Points to the SQL query editor.
- View w/ the SQL results**: Points to the results grid.
- Here you can create SQL scripts with Select, Update, Delete, Insert statements**: Points to the Project Explorer on the left.



Browsing Data Sets and Submitting JCL

```
Menu  Functions  Confirm  Utilities  Help
-----
EDIT          IMSDATA.IM11A.JOBS          Row 00001 of 00091
Command ==>          Scroll ==> PAGE
-----
Name          Prompt          Size  Created          Changed          ID
-----
ACBGEN1A      13  2007/11/26      2011/08/18  13:46:14  COUGHTA
ARCHIVE       23  2010/01/04      2010/01/04  17:04:59  COUGHTA
ASSEMBLE      42  2009/04/21      2009/07/28  10:31:20  COUGHTA
AUDITSUP      59  2009/04/17      2009/04/20  11:39:14  COUGHTA
AUDTPRT       7   2006/11/23      2010/07/13  18:42:39  COUGHTA
BASKETDB      127 2011/08/10      2011/08/10  18:54:40  COUGHTA
BASKETLD      28  2011/08/18      2011/08/18  15:00:40  COUGHTA
BATSPOC       395 2008/01/16      2010/02/19  13:42:27  COUGHTA
BATSPOC1      21  2009/12/01      2009/12/01  15:20:32  COUGHTA
BMPDDLTO      53  2003/07/16      2009/07/06  18:01:46  COUGHTA
BMPDDLTO1     37  2009/07/07      2011/05/26  08:00:41  COUGHTA
BSKLOADS     248 2009/06/25      2011/08/18  19:23:35  COUGHTA
BSKRECON      54  2011/08/18      2011/08/18  14:18:15  COUGHTA
BSKTIDX       20  2011/08/10      2011/08/10  18:54:40  COUGHTA
BSTKPSB       38  2011/08/10      2011/08/10  18:53:40  COUGHTA
CLSOLDS       25  2007/08/20      2011/05/18  11:25:47  COUGHTA
COBCOMP       75  2008/05/13      2009/05/14  12:44:22  COUGHTA
-----
F1=Help      F2=Split      F3=Exit      F5=Rfind      F7=Up      F8=Down      F9=Swap
F10=Left     F11=Right     F12=Cancel
-----
MA a 04/015
-----
Connected to remote server/host winmvs50.hursley.ibm.com using lu/pool IYELTC09 and port 23 HP Photosmart B110 series on HP_192.168.1.78_C
```



z/OS - IMSDATA.IM11A.JOBS(DFSERA10) - IMS Enterprise Suite Explorer

File Edit Navigate Search Project Run Window Help

Data Sets z/OS UNIX Files

Qualifier: IMSDATA.IM11A.JOBS (2)

- AUDITSUP
- AUDTPRT
- BASKETDB
- BASKETLD
- BATSPDC
- BATSPDC1
- BMPDDL0
- BMPDDL1
- BSKLOADS
- BSKRECON
- BSKTIDX
- BSTKPSB
- CLSOLDS
- COBCOMP
- DBDGENJ
- DBDGEN1A
- DBRCASM
- DBRCSTAT
- DEFDB
- DFSBSKTL
- DFSBSK01
- DFSDEFF2
- DFSERA
- DFSERA1
- DFSIVC
- DFSIVP

Browse data sets

DFSERA1

- New Data Set Member...
- Open
- Submit Job
- Delete
- Delete

```
//DFSERA10 JOB MSGLEVEL=1,MSGCLASS=H,CLASS=A,NOTIFY=COUGHTA,  
// REGION=128M  
//STEP1 EXEC PGM=DFSERA10  
//STEPLIB DD DISP=SHR,DSN=IMS.V11.DBDC.SDFSRESL  
//SYSPRINT DD SYSOUT=A  
//SYSUT1 DD DSN=IMSDATA.SLDSP.IM1A.D11151.T1234549.V60,DISP=SHR  
//OUTDDN DD DSN=IMSDATA.IM11A.IMAGE1,UNIT=SYSDA,SPACE=(CYL,(2,2)),  
//          DISP=(,CATLG,CATLG),DCB=(LRECL=80,RECFM=FB,BLKSIZE=80)  
//SYSIN DD *  
OPTION PRINT OFFSET=5,VALUE=5F,COND=M  
OPTION PRINT EXITR=DFSERA50,OFFSET=25,FLDTYP=C, X  
          VALUE=DFSIVP37,FLDLLEN=7,DDNAME=OUTDDN,COND=E  
END  
*-----*  
/*
```

Edit a data set member

Jobs

Job Name: IM* Delete Delete

- IM1ADLI - STC05105 (IMSCREG)
- IM1AIRLM - STC05100 (IMSCREG)
- IM1ARM - STC05104 (IMSCREG)
- IM1AOM1 - STC05102 (IMSCREG)
- IM1ACONN - STC05101 (IMSCREG)
- IM1ASCI - STC05103 (IMSCREG)
- IM1ACTRL - STC05099 (IMSCREG)
- IM1AODBM - JOB05154 (COUGHTA)
- IM1AFP3 - JOB05112 (IMSCREG)
- IM1AFP2 - JOB05111 (IMSCREG)
- IM1AFP1 - JOB05110 (IMSCREG)
- IM1AMPP - JOB05109 (IMSCREG)

JES output is displayed here

Properties Console

```
z/OS  
JOBID=JOB05187 - submitted  
JOBID=JOB02782 - deleted
```

Fetching children of IM11A.*

IMS Explorer ... where do you get it from?

- **Download as part of IMS Enterprise Suite**
 - ibm.com/ims
 - → Click on IMS Enterprise Suite

Download the IMS Explorer
ibm.com/ims
 → Click on IMS Enterprise Suite

**IMS Enterprise Suite
 extends access to IMS!**

→ Download now

Integrate
Performance
Reliable
Security
TRUST

IMS Explorer ... two offerings

- **Stand-alone offering**
- **Shell-sharing offering for use with RDz 8.0.3 or Optim Development Studio 2.2.1.1 or later**

IMS Enterprise Suite

Downloads
To properly configure your download, please review the appropriate offering. When you are done, press the "Con"

Offering

- IMS Enterprise Suite Explorer for Development**
Version 2.1.1
Languages: English
- IMS Enterprise Suite Connect API**
Version 2.1.0
Languages: English
- IMS Enterprise Suite DLIModel Utility Plug-in**
Version 2.1.0
Languages: English

IMS Enterprise Suite Explorer for Development

- The installation repository file for IMS Explorer IMSExplorer211.zip (700 MB) **Stand-alone**
- The installation repository file for the shell-sharing version of the IMS Explorer plug-in package to be installed on top of IBM Rational Developer for System z (8.0.3 or later) or IBM Optim Development Studio (2.2.1 or later). IMSExplorer_SS211.zip (33MB) **Shell-sharing**



Software Requirements

- The IMS Explorer supports IMS Version 10 and later
- For SQL access to an IMS database from IMS Explorer, you must have IMS Version 11 or later on your host system with Open Database implemented
- To import COBOL and PL/I data structures, the IMS Explorer must be installed into Rational Developer for System z Version 8.0 or later
- The IMS Explorer supports cross-product integration (shell-sharing) with the following products:
 - Rational Developer for System z Version 8.0.3 or later
 - IBM Optim Development Studio Version 2.2.1.1 or later
 - IBM Problem Determination Tools Plug-ins for Eclipse

<u>IMS Explorer for Development</u>	RDz shell-sharing environment				non-RDz environment			
	Open Database		IMS Catalog		Open Database		IMS Catalog	
	WITH	WITHOUT	WITH	WITHOUT	WITH	WITHOUT	WITH	WITHOUT
Visualization/editing of PSB, DBD	X				X			
Access z/OS system - Files & Sysouts	X (through RDz's native function)				X			
Download & Upload PSB & DBD from z/OS	X				X			
SQL access	X		X	X	X		X	X
Cobol and PLI import	X	X	X	X				
Import source from Catalog (when Catalog-enabled)	X		X		X		X	

Agenda

- **IMS Explorer Overview**
- **DBD and PSB Graphical View**
 - Possible with IMS Explorer & without RDz
- **IMS Explorer connecting to ODBM**
- **IMS Explorer using the IMS Catalog**





Choose where Importing DBD and PSB source from

- **You import DBD and PSB SOURCE files and not MODULES !**
 - PCB must have a label

- **z/OS with IMS Explorer in stand alone**
 - You need a FTP server running on z/OS you want to pull PSBs and DBDs from.
 - This FTP server has an IP address and a port it listens to.(some customers have more than one FTP server, with different addresses than the z/OS.)
 - You need a userid authorized to use that FTP server
 - You need to pass any FIREWALL before trying a connection, host or client.

- **z/OS with IMS Explorer in RDz**
 - You use the RSE function available with RDz (daemon running in z/OS)

- **Local environment**
 - In that case, you need to upload your DBD and PSB source files to a local path
 - IND\$FILE, client FTP tool ..
 - Don't use copy/paste to create your DBD/PSB in local

Connecting to z FTP server with Explorer version 2.1.1.0 (DEC 2012) (1/2)

- **Click** Window>Preferences>Remote z/OS System connect>z/OS Credentials

Arbitrary name

1

2

3

4

Click here

Click here

Your TSO userid.
PW is up to you

Preferences

type filter text

- IMS Explorer
- Install/Update
- Java
- Java EE
- Java Persistence
- JavaScript
- JET Transformations
- Model Validation
- Modeling
- Plug-in Development
- Remote Systems
 - Remote z/OS System Connections
 - z/OS Credentials**
 - Run/Debug
- Server
- Team
- Validation
- Web
- Web Services
- XML

z/OS Credentials

Credential

Name ISA

New

Delete

Authentication

User ID: ISABEL

Password:

Save password

Select the save password check box to enter and save the password for this credential.

Warning icon

Saved passwords are stored on your computer in a file that is difficult, but not impossible, for an intruder to read.

Restore Defaults

Apply

OK

Cancel

Connecting to z FTP server with Explorer version 2.1.1.0 (DEC 2012) (2/2)

- Click Window>Preferences>Remote z/OS System Connections

The screenshot shows the 'Preferences' dialog box with the 'Remote z/OS System Connections' section selected. The left sidebar (1) shows a tree view where 'Remote z/OS System Connections' is highlighted. The main area (2) is titled 'Remote z/OS System Connections' and contains several sections:

- Connection:** Type: System z - FTP (3), Name: ZT01 blue.
- Location:** Host name: 9.212.143.123, Port number: 21. A blue box labeled 'z/OS FTP server' points to these fields.
- Authentication:** Credentials: ISA. A blue box labeled 'The credential name you have just created' points to this field.
- FTP Additional Details:** Transfer mode: Passive Active. Attempt secure connection: . Enable MBCS support: .

At the bottom right, there are buttons for 'Restore Defaults', 'Apply', 'OK', and 'Cancel'. A red circle (4) and a 'Click here' label point to the 'Apply' button.

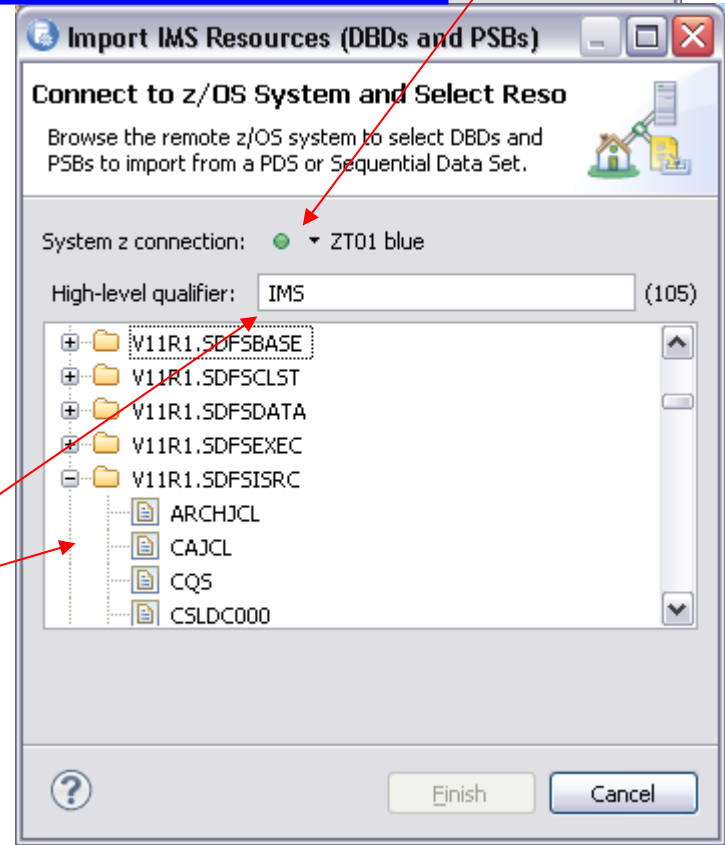
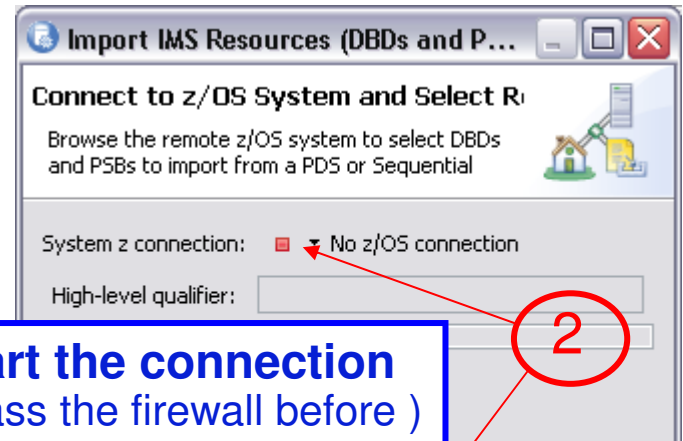
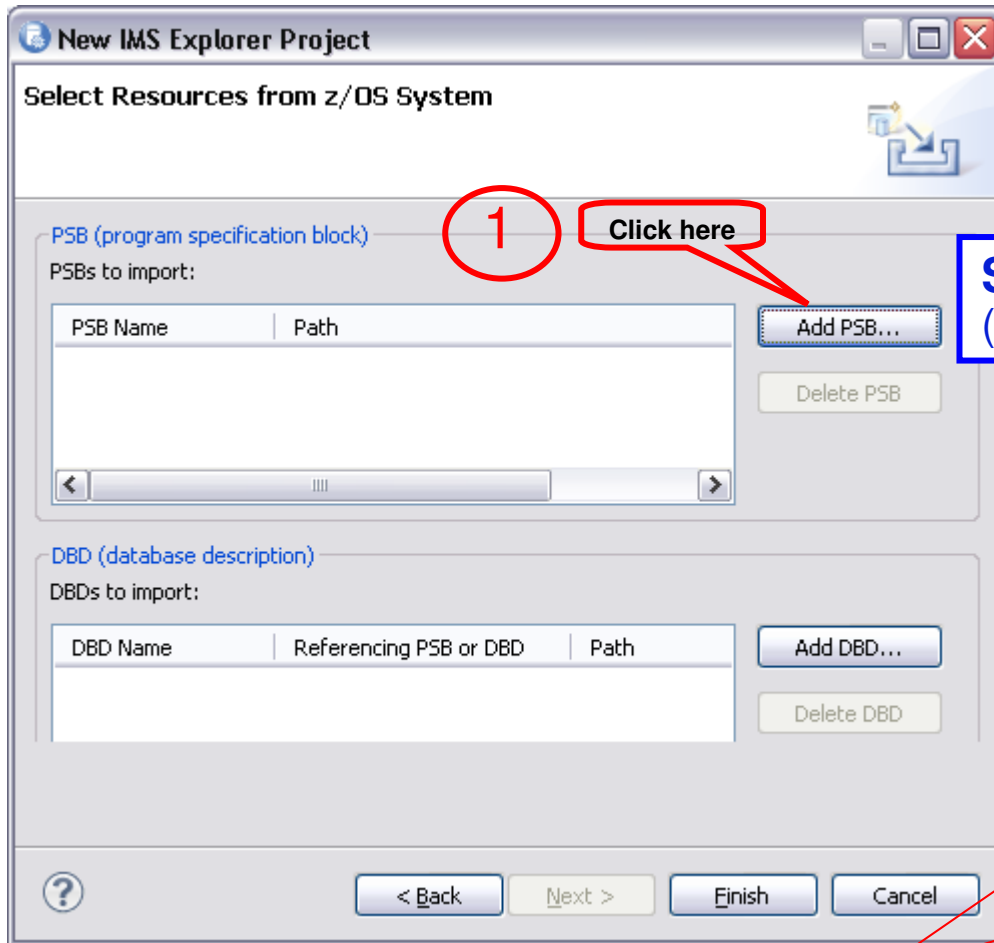
Create an IMS Explorer Project

- Click **File>New>Project>IMS Explorer Project** from the main menu bar and give a name to your project and click **Next** :

The screenshot shows the 'New IMS Explorer Project' wizard. The 'Select an Import Source' dialog box is open, with the 'z/OS system' radio button selected. Three callout boxes provide additional context:

- No FTP connection, DBD and PSB source files available on local workstation** (points to 'Local file system')
- FTP connection available, DBD and PSB source files available on z/OS partition** (points to 'z/OS system')
- IMS 12 Catalog enabled What ?** (points to 'IMS catalog')

Import PSBs from z/OS system



3 Choose your PSB(s)

Example

Import IMS Resources (DBDs and PSBs)

Connect to z/OS System and Select

Browse the remote z/OS system to select DBDs

System z connection: ● ZT01 blue

High-level qualifier: IMSCFG.IMSC.PSB

- └─ AUTOPSBL
- └─ AUTOPSB1
- └─ **AUTPSB11**
- └─ CELPSBL
- └─ CELPSB1
- └─ CELPSB1G
- └─ CELPSB2
- └─ CMPNV
- └─ CMPNVG

New IMS Explorer Project

Select Resources from z/OS System

PSB (program specification block)

PSBs to import:

PSB Name	Path
AUTPSB11	IMSCFG.IMSC.PSB.AUTPSB11

DBD (database description)

DBDs to import:

DBD Name	Referencing PSB or DBD	Path

DBDs to import for the selected PSBs or DBDs:

This list shows any DBDs that you still need to import based on selected PSBs or DBDs, because a PSB or a DBD that you added references that DBD.

DBD Name	Referencing PSB or DBD
EMPLDBL	AUTPSB11
DEALERL	AUTPSB11
SINDEX22	AUTPSB11

New IMS Explorer Project

Select Resources from z/OS System

PSB (program specification block)

PSBs to import:

PSB Name	Path
AUTPSB11	IMSCFG.IMSC.PSB.AUTPSB11

DBD (database description)

DBDs to import:

DBD Name	Referencing PSB or DBD	Path
EMPLDBL	AUTPSB11	IMSCFG.IMSC.I
SINDEX22	AUTPSB11	IMSCFG.IMSC.I
DEALERL	AUTPSB11	IMSCFG.IMSC.I

DBDs to import for the selected PSBs or DBDs:

This list shows any DBDs that you still need to import based on your selected PSBs or DBDs, because a PSB or a DBD that you added references that DBD.

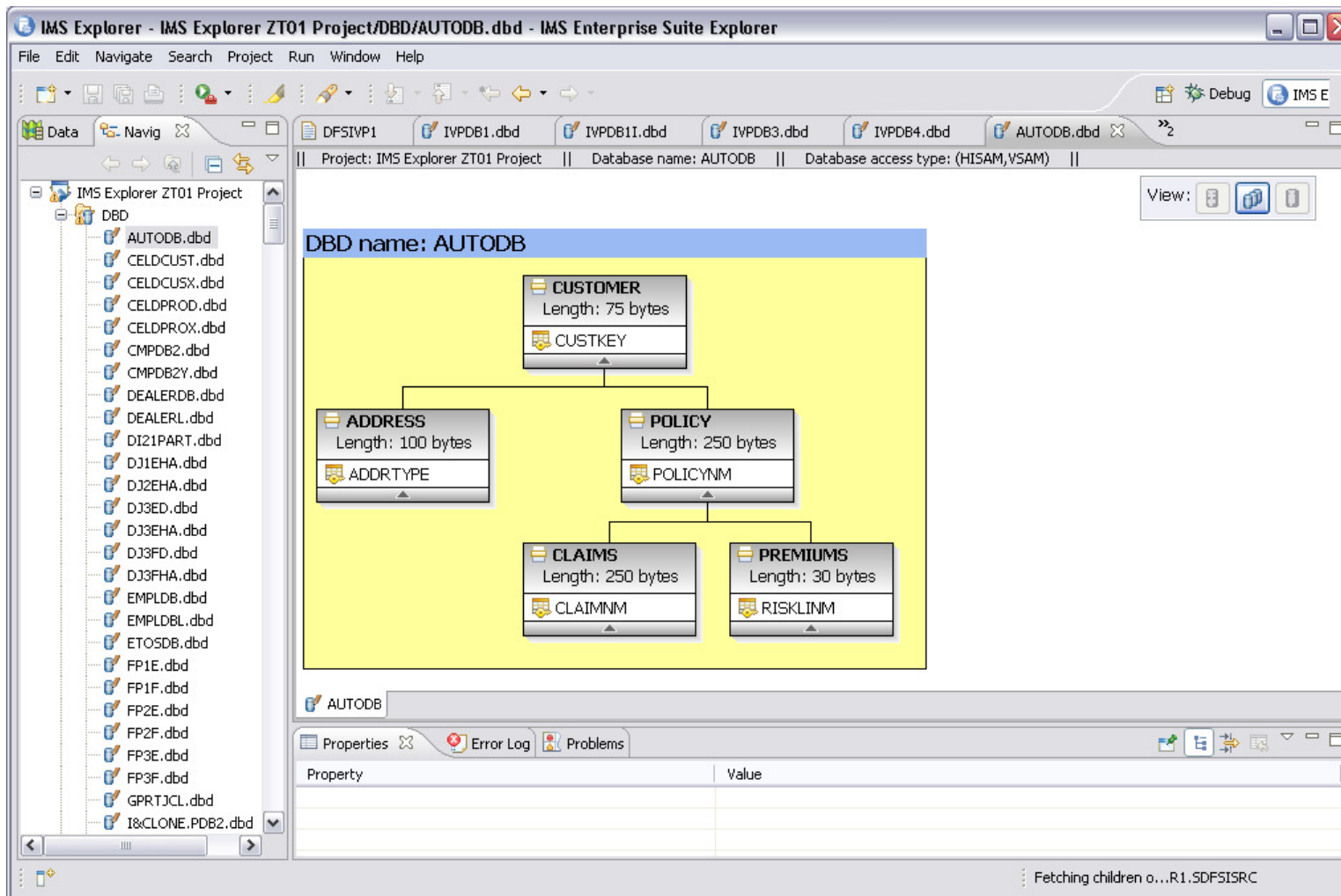
DBD Name	Referencing PSB or DBD
EMPLDB	DEALERL,EMPLDBL
DEALERDB	DEALERL,EMPLDBL,SINDEX22

It tells you the missing DBD names!

DBD Name	Referencing PSB or DBD
EMPLDB	DEALERL,EMPLDBL
DEALERDB	DEALERL,EMPLDBL,SINDEX22

Graphical View of DBD

- Double-click on the DBD you want to see



Agenda

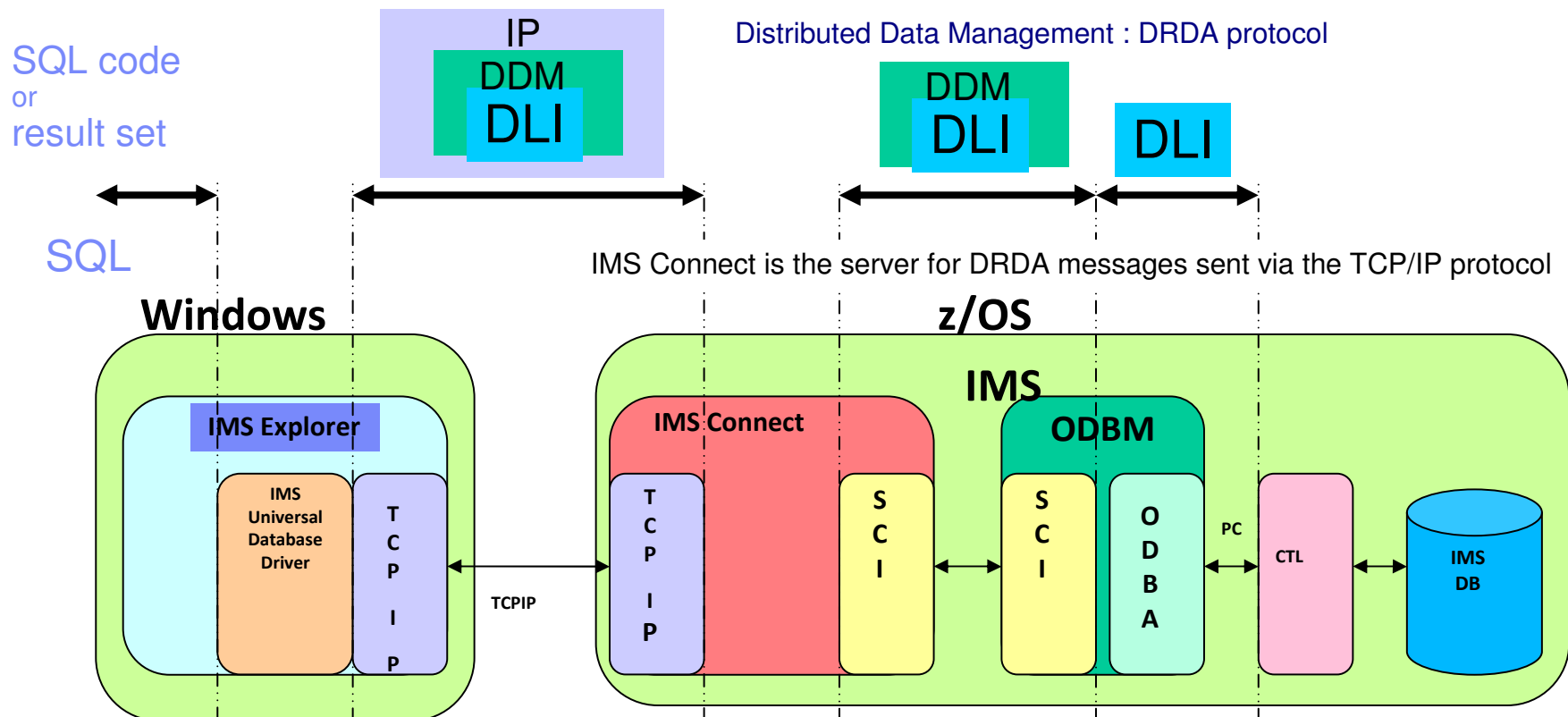
- **IMS Explorer Overview**
- **DBD and PSB Graphical View**
- **IMS Explorer connecting to ODBM**
- **IMS Explorer using the IMS Catalog**



Access IMS Data using JDBC and IMS Open Database

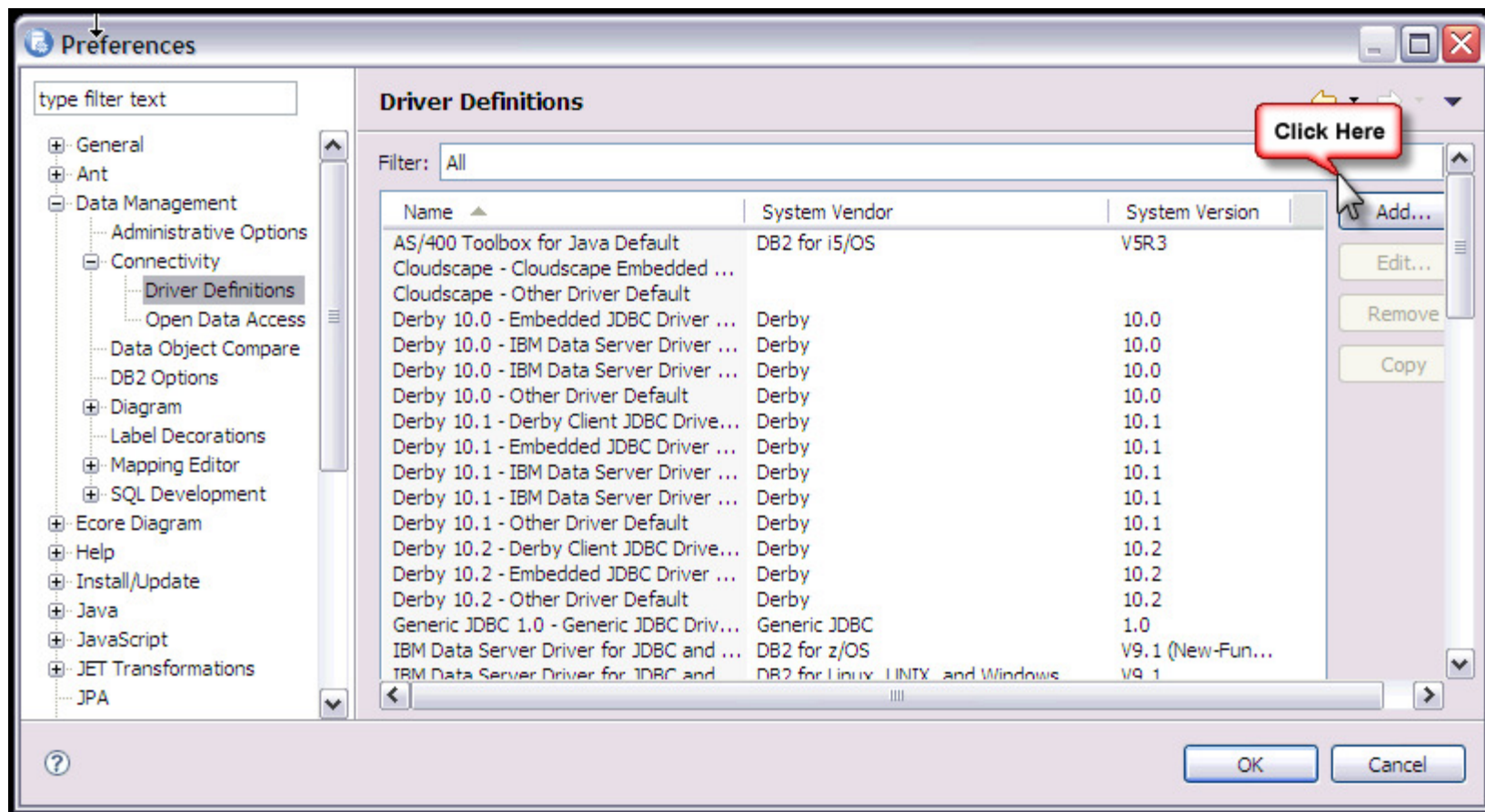
▪ Distributed Relational Database Architecture (DRDA)

- Set of protocols and functions for client and database servers connectivity
- Communication protocol
- Two-Phase commit protocol
- Security



Using the Data Store Explorer

- Using the Explorer to generate SQL statements for use with IMS Open DB
- First add the definition for the Universal JDBC Driver: Click Window > Preferences > Data Management > Connectivity > Driver Definitions > Add



Using the Data Store Explorer...

- Right click “Database Connections”, in the DSE window, then “New”. Complete the Connection Parameters.

The screenshot shows the 'New Connection' dialog box in IBM IMS Explorer. The 'Database Connections' folder in the Data Source Explorer is highlighted with a red box and labeled 'Right click'. The 'Select a database manager' list has 'IMS' selected with a red box. The 'Properties' section has a red box around the *Host, *Port number, User name, Password, and Save password fields. Another red box highlights the 'Local IMS Explorer project' section with 'Project: ZT01 IMB1 IMS Explorer' and 'PSB: DFSIVP37'. A red box at the bottom right points to the 'Next >' button with the label 'Click here'.

Using the Data Store Explorer...

- **Optionally set SSL on for the connection, and/or specify a log-in timeout value.**

New Connection

Connection Parameters
Select the database manager, JDBC driver, and required connection parameters.

Connection identification

Use default naming convention

Connection Name:

Select a database manager:

- Cloudscape
- DB2 for i5/OS
- DB2 for Linux, UNIX, and Windows
- DB2 for z/OS
- Derby
- Generic JDBC
- HSQLDB
- IMS**
- Informix
- MaxDB
- MySQL
- Oracle
- SQL Server
- Sybase
- Websphere

JDBC driver:

Properties

General Tracing Optional

Use SSL for connection:

Log-in timeout value: Seconds

Additional Connection Properties

Property name: Property value: Add

fetchSize=0;

Move Up
Move Down
Remove
Clear All

Test Connection

< Back Next > Finish Cancel

Using the Data Store Explorer...

- **Success! Results are returned:**

The screenshot shows the IBM Data Store Explorer interface. On the left, the 'Data Source Explorer' tree shows a project named 'ZT01 IMB1' with a database 'IMS DB ZT01 IMB1'. Under 'Schemas', there is a 'PHONEAP' schema containing a table named 'A1111111'. A red box highlights the table name 'A1111111' with the text 'Right click' and an arrow pointing to it. A context menu is open over the table, with 'Return All Rows' selected. A red arrow points from the 'Return All Rows' option in the menu to the 'SQL Results' window at the bottom right. The 'SQL Results' window shows a table with columns 'Status' and 'Result1'. The 'Result1' column contains a list of alphanumeric strings, including 'LU05309000', 'LU01505000', 'LAST6', 'LU02141000', 'LU03383000', 'LU06356000', 'LU03356000', 'LU00213000', 'LU05158000', 'LU01574000', 'LU05102000', 'LU02280000', and 'LU02172000'. The status for all rows is 'Succeeded'. The bottom of the window indicates 'Total 139 records shown'.

Agenda

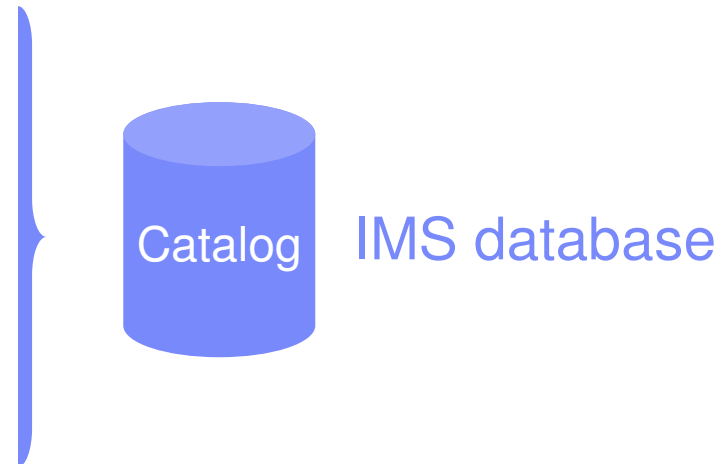
- **IMS Explorer Overview**
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Types of technical metadata and storage medium

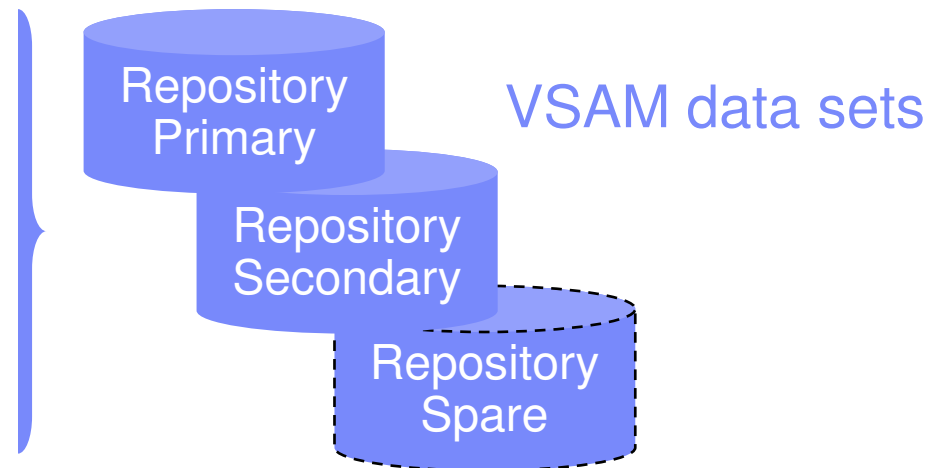
- **DB**

- PSB/DBD resources
 - Database structure definitions
 - Physical database definitions
 - Segment definitions
 - Field definitions
- Application
 - Data types
 - Application defined fields
 - Encodings
 - Redefines
 - User defined types
 - Structures



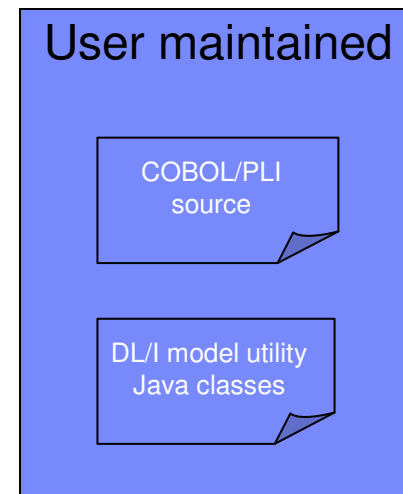
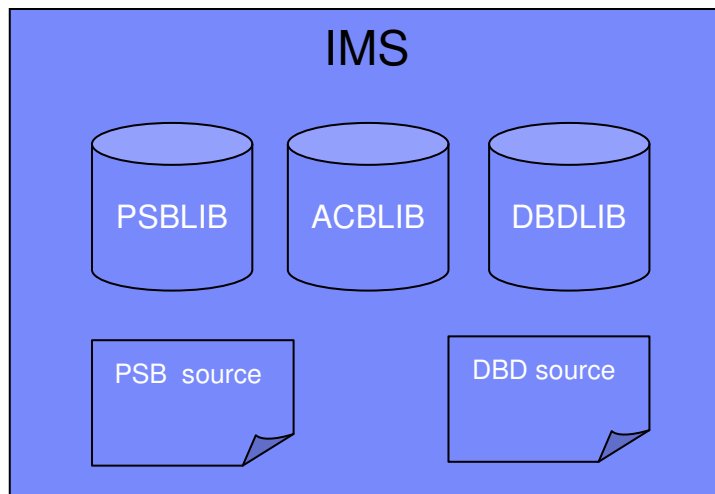
- **TM**

- MODBLKS resources
 - Program definitions
 - Transaction definitions
- FORMAT resources
- Application
 - Input/output message definitions

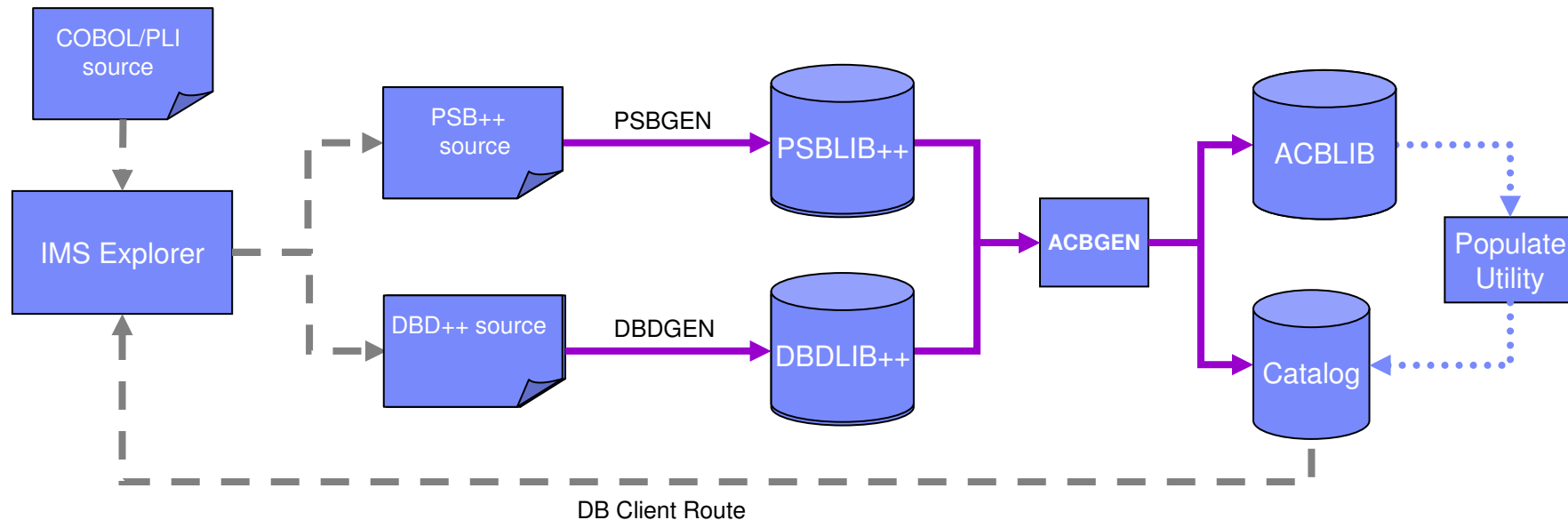


Before the IMS Catalog

- **Databases partially defined in DBD**
 - Only searchable fields needed by applications
 - Remaining segment data is not defined
- **Remaining database definition in applications**
 - COBOL copybook maps segment data
 - Applications can have different segment mappings

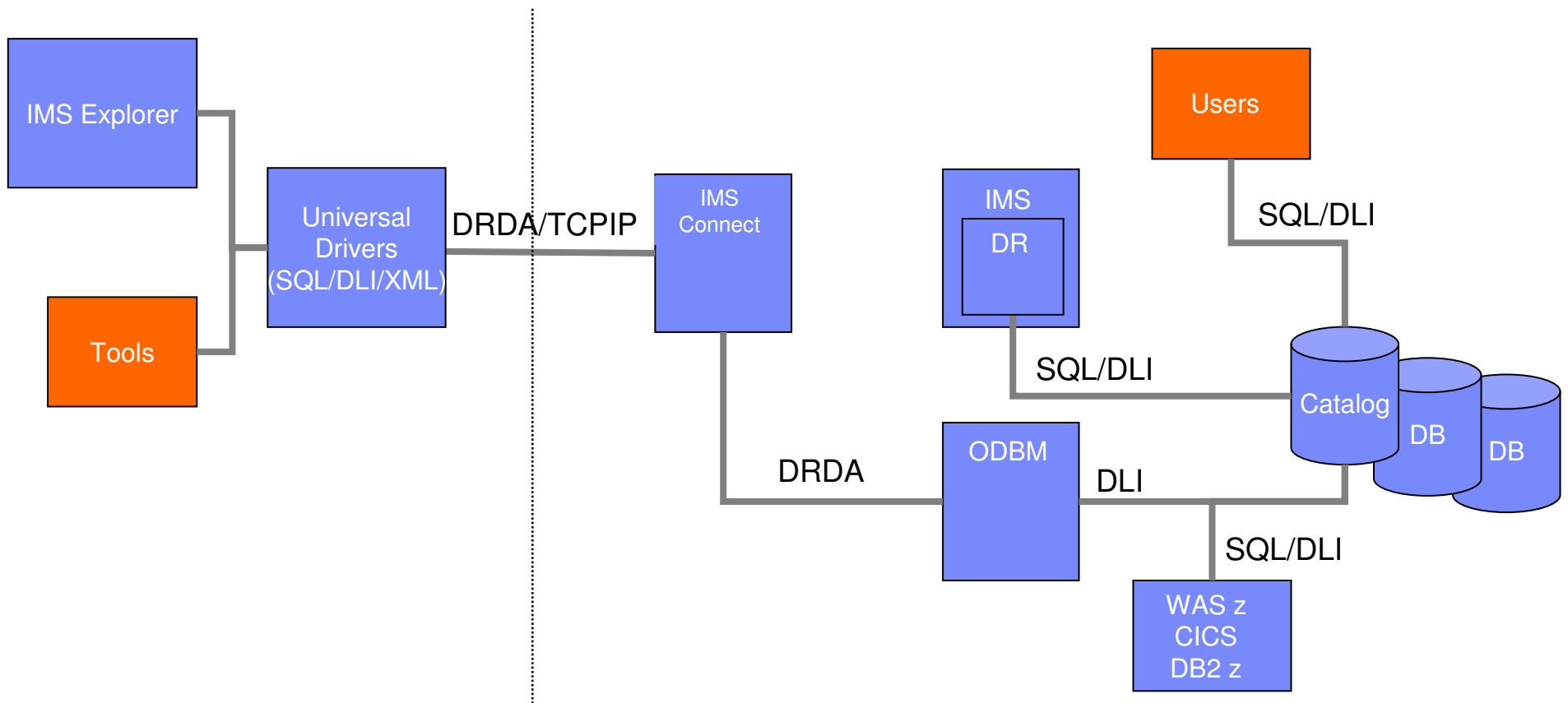


IMS Catalog life cycle



- Utility will populate catalog
- ACBGEN will populate ACBLIB and catalog
 - Populate ACBLIB with *standard* ACB info and extended info
 - Populate catalog with *extended* info
- Key points
 - Only way to update catalog is via the ACBGEN process
 - Extended info stored in ACBLIB members for recoverability
 - Extended info is acquired via the IMS Explorer

Catalog runtime access



Agenda

- **IMS Explorer Overview**
- **DBD and PSB Graphical View**
- **IMS Explorer connecting to ODBM**
- **IMS Explorer using the IMS Catalog**

