IMS Hands-on Lab - Using The New IMS Explorer To Access Your IMS Data

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This two part hands on lab provides the opportunity to access IMS databases from a distributed runtime environment provided by IBM’s IMS Enterprise Suite Explorer for Development.

In Part 1 you will use the IMS Enterprise Suite Explorer for Development to create the IMS Java Metadata that represents the IMS database view.

In Part 2 you will use IMS Enterprise Suite Explorer Data Source Explorer and the Type-4 IMS Universal Driver for distributed access to the IMS database via IMS Connect and ODBM.

IMS Enterprise Suite Explorer for Development

IMS Enterprise Suite Explorer for Development is an Eclipse-based integrated development environment (IDE) for IMS application developers and database architects.

- It can also be integrated with other IBM Eclipse-based tools (RAD, RDz, Optum Data Studio)

  Provides end-to-end application development cycle

- Graphical editors are used for the development and visualization

  Program Specification Block (PSB)

  Database Description (DBD)

- IMS Universal JDBC driver type-4 connectivity

  Relational view of IMS data

  Graphical assistance to build SQL statements

- Incorporate DLIModel Utility and IMS 12 Catalog functionality
Provides current existing functionalities from IMS DLI Model Utility

- Provide migration support of existing DLI Model Utility projects
- Provide Metadata source for update to IMS Catalog
- Provide Metadata access from IMS Catalog

Distribution

- IMS Enterprise Suite V2.1 at http://www.ibm.com/ims

IMS Connect and Open Database Manager

- Open Database Manager (ODBM) is a Common Service Layer component
  - Receives database connection requests from IMS Connect
  - Translates incoming database requests from the DDM protocol into DLI calls expected by IMS
  - Translates responses to the client into the DDM protocol
  - Manages connections to IMS DB
    - Implements the DRA interface

Part 1. IMS Enterprise Suite Explorer for Development

In this part of the lab, the IMS Explorer is used to create the IMS Java Database View metadata by parsing the IMS IVP Telephone PSB and DBD sources.
Note that in your workstation environments, the IMS Explorer is a standalone environment.

1. Start IMS Explorer
You may be prompted to select a workspace. A workspace is a directory that stores all of the files for the projects.

You can select your own directory, e.g., C:\share\explorerlab\workspace or take the default directory.
When Explorer startup is complete, you may be shown the Welcome Screen.

Close the Welcome page
Click on File > New > IMS Explorer Project

Enter a Project Name, e.g., playimsexplorer
Click Next
On the Import IMS Resources (DBDs and PSBs) you can use Local file systems when the source files have been downloaded to your workstation. You can select z/OS system and connect to your z/OS system where your DBD/PSB is stored. For IMS 12 with Catalog function enabled you can obtain the Metadata.
For this lab we use local file systems source to create the Metadata and download source from z/OS to create the Metadata.
For this project select Local File system to obtain the source.
Click NEXT

Select the Add PSB button
You will be asked to provide the PSB source. Use the Browse function to navigate to the path where the DFSIVP37.psb source is located.
C:\ODBMLab
On the Open box select DFSIVP37.psb. and click Open. Note since the IVPDB2 source box is in the same directory it is included in the import.

Click Finish to activate the parsing of the PSB and DBD. After parsing completes your project is created. Click on the + to open the project and navigate to the DBD folder. To open the basic view double click on IVPDB2.dbd.
The Manage Fields function is used to add more fields to the segment since only the first 10 bytes are defined.

Right click on A1111111 and select Manage Fields
Select A111111 and enter LASTNAME for alias name

Select next and complete Data type definitions
Application Data Type from drop down list select Char
Physical Data Type from drop down list select Char
Character encoding enter: Cp1047
Click Finish
Repeat (Right click on A1111111 Manage Fields) to add more fields

Select <empty> Name field <space> Alias field use ADD button create field definitions. Set FIRSTNAME for alias name, verify starting positioing is 11, set length to 10, select
User-defined field button
Select next and complete Data type definitions
Application Data Type from drop down list select Char
Physical Data Type from drop down list select Char
Character encoding enter: Cp1047
and click Finish
Set EXTENSION for alias name , verify starting position is 21 , set length to 10 and select User-defined field button
Select next and complete Data type definitions
Application Data Type from drop down list select Char
Physical Data Type from drop down list select Char
Character encoding enter: Cp1047
and click Finish
Set ZIPCODE for alias name , verify starting position is 31 , set length to 7 and select User-defined field button
Select next and complete Data type definitions
Application Data Type from drop down list select Char
Physical Data Type from drop down list select Char
Character encoding enter: Cp1047
and click Finish
Set FILLER for alias name , verify starting position is 38 , verify length is 3
Click Finish to take default values and then click Finish on the Add or Edit Physical DBD Field to complete the segment field definitions.
You have now defined the fields representing the 40 bytes of the segment.
Use Ctrl-S to save the changes or just use the x tab to close the view.

Follow the path IMS Universal Drivers Metadata>dfsivp37> and double-click DFSIVP37DatabaseView.java to view the updates to the metadata.
Note the addition of the LASTNAME, FIRSTNAME, EXTENSION, ZIPCODE and Filler fields. This completes the building of the metadata.

This completes part 1 of the lab

Part 2

In this section you will use the Data Store Explorer (DSE) in IMS Explorer to access the IMS Phone Book database using the metadata you created in Part 1.

- You can create and manage connections to IMS™ databases by using the Data Source Explorer.

To connect to an IMS database use the New Connection wizard to create a connection profile, so that you can connect to an IMS database and browse existing data objects:

1. In the Data Source Explorer, right-click the Database Connections folder, and click New.
2. Select IMS as the database manager and the driver name IMS Universal JDBC Driver as the JDBC driver.
In the Connection Name field enter IMPOTxx where xx is your team number
In the Data Store field enter IMSD
In the HOST field enter zserveros.demos.ibm.com
In the Port number field enter 7001
In the userid field enter IMPOTxx where xx is your team number
In the password field enter IMS06POT
Scroll down to Local IMS Explorer project and select the radio button
The project drop down list select your project, e.g., playimsexplorer
3. Click Finish.

The connection is displayed in the Data Source Explorer.
To test the connection in the Data Source Explorer section under Database Connections, right click on DFSIVP37.

Expand the path to columns and select A1111111.

Right click and select Data then click on return all rows to return data.

You can now also issue additional queries. In between queries, you might need to disconnect/reconnect the connections.
You can look at individual columns, 
Select LASTNAME, right click and select Data then click on sample contents to return data.

You can insert your own name into the database:

To create and run custom SQL queries against the IMS database:

1. Select your project e.g., playimsexplorer.
   a. Right click New > SQL File and left mouse click.
b. Enter SQLcalls for file name, click the advanced tab and check Link to file in the system box. Browse for C:ODBMLab folder and select sqlscripts.txt file then click Open tab.
c. For Database name: field use the drop down tab and select DFSIVP37.
d. Click Finish.
Change IMPOTxx to your team number
Select an SQL query and right mouse click
Select the Execute Current Text to run the SQL call
Try other SQL calls.

2. Create a SQL calls by using the SQL Query Builder.
   a. Select your project e.g., playimsexplorer.
   b. Right click New > Other
c. In the Select Wizard box expand
d. Expand the Data folder and select SQL or XQuery Script then click next.

e. In the box change Name: to SelectScript1 and select SQL Query Builder (for single SQL ... radio button and click Finish.

f. When the Select box appears verify the connection is your IMPOTxx defined connection
and select Finish.

In the add a table window right-click and select Add Table
Expand PHONEAP and highlight A1111111 and hit ok button
The SELECT statement is created. In the table box you can use check box to identify the fields you want to see in the results. Then use Run SQL to execute the query.
Right click on the Select statement and use the Run SQL
The results
You can use the wizard to create INSERT
UPDATE

Note for UPDATE you need to use the SET
And Where tabs to specify the values for changing FIRSTNAME and qualify for LAST-NAME IMPOTxx
Results
You can run the SQLcalls.sql script Select to verify the update
This completes the lab