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Using the IMS Explorer with the IMS Catalog Hands-on Lab

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IBM

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Insert Custom Session QR if Desired.

SHARE in Boston

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This 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. This lab focuses on the use of the IMS Catalog and IMS 12.

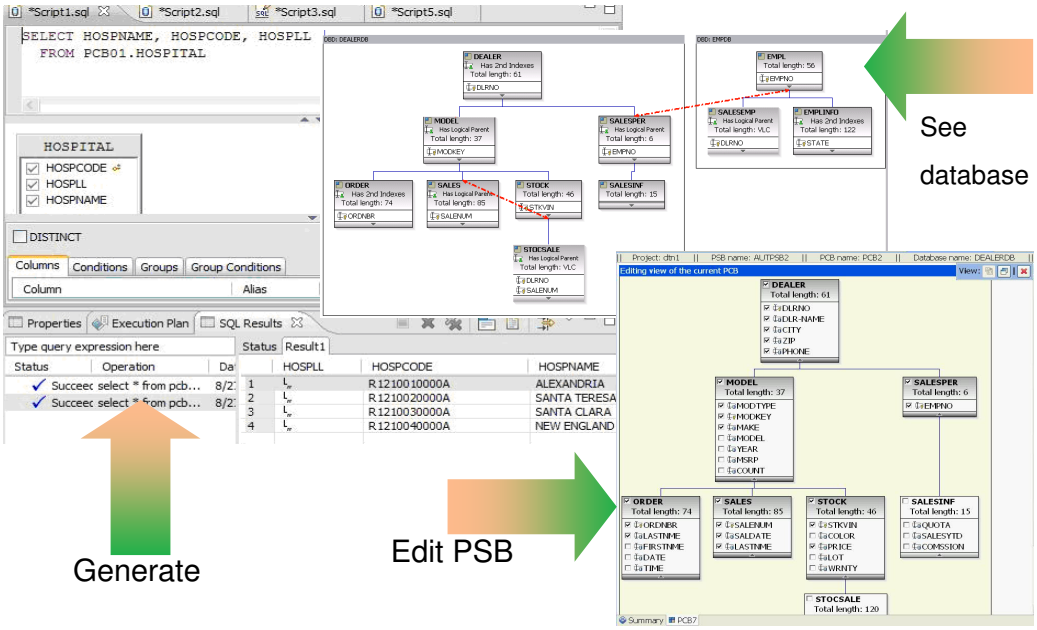
The IMS Enterprise Suite Explorer for Development

The 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 Eclipsed based tools (RAD, RDz, Optim Data Studio)
- Provides end-to-end application development cycle

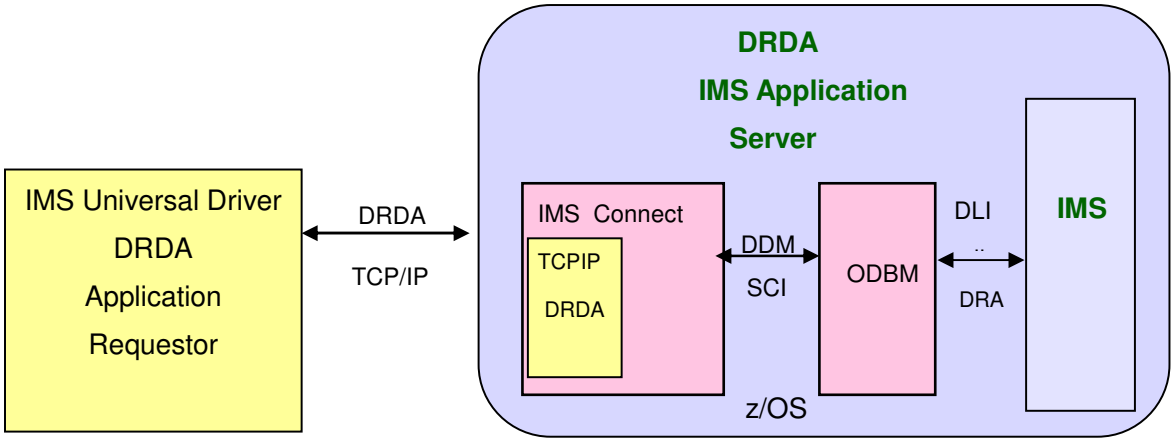
Graphical editors are used for development and visualization of

- Program Specification Blocks (PSBs)
- Database Descriptions (DBDs)



IMS Universal JDBC driver type-4 connectivity provides:

- Relational view of IMS data
- Graphical assistance to build SQL statements



New support which incorporates the DLIModel Utility and the IMS 12 Catalog functionality:

- Provides current existing functionalities from IMS DLIModel Utility
- Provides migration support of existing DLIModel Utility projects
- Provides Metadata source for update to IMS Catalog
- Provides Metadata access from the IMS Catalog

Distribution of the IMS Explorer is through a download capability

- IMS Enterprise Suite V2.2.0.1 at http://www.ibm.com/ims

IMS Connect and Open Database Manager

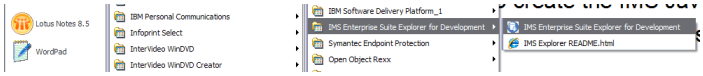
- Open Database Manager (ODBM) is a Common Service Layer component
  - Receives database connection requests from IMS Connect
  - Translates incoming database requests from the DDM protocol into DLI calls expected by IMS
  - Translates responses to the client into the DDM protocol
  - Manages connections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

IMS Enterprise Suite Explorer for Development

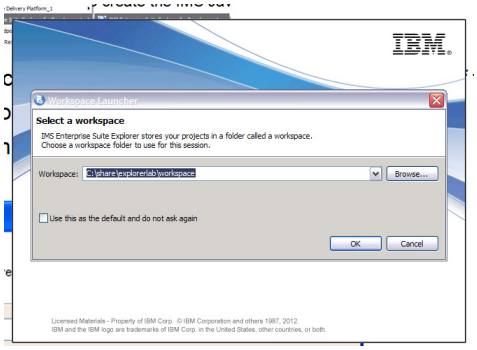
In this part of the lab, the IMS Explorer is used to create the IMS Java Database View metadata by parsing the IMS PART Database PSB and DBD sources.

1. **Start IMS Explorer**

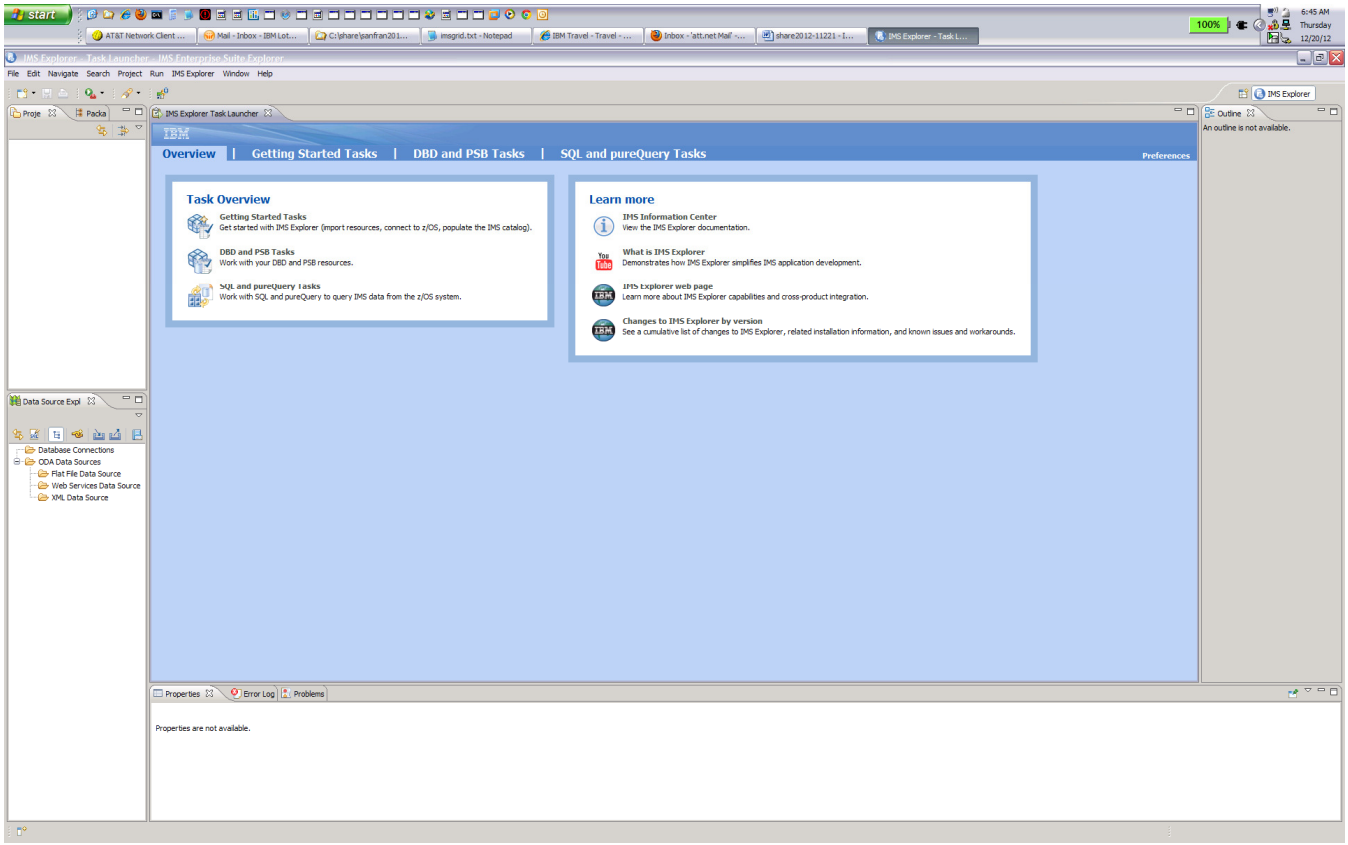
   Click on Start **>** All Programs **>** IMS Enterprise Suite for Development **>** IMS Enterprise Suite for Development



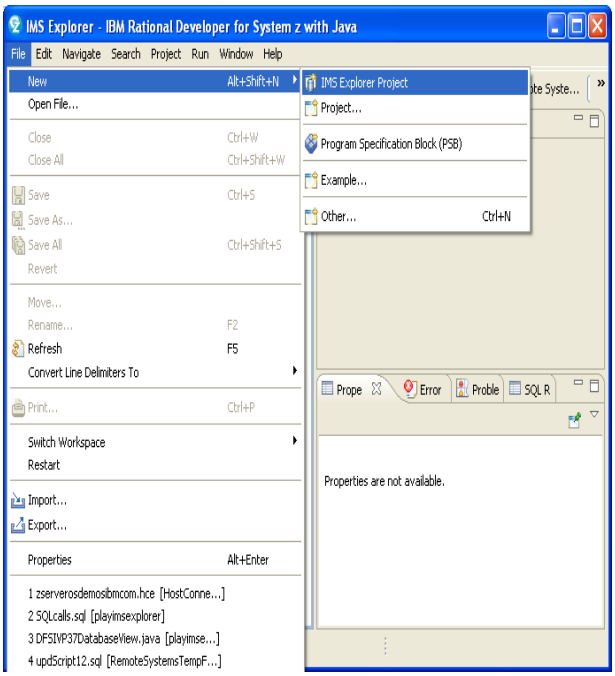
You may be prompted to select a workspace. A workspace is a directory that stores all of the files for the projects. You can select your own directory, e.g., **C:\share\explorerlab\workspace** or any name you choose.

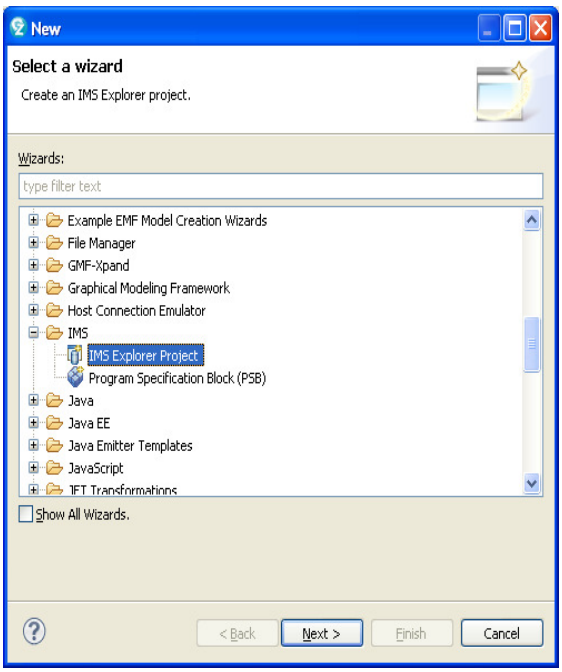


When Explorer startup is complete, you may be shown the Welcome Screen. If so, close the Welcome page (x the tab at the top of the screen on the left).

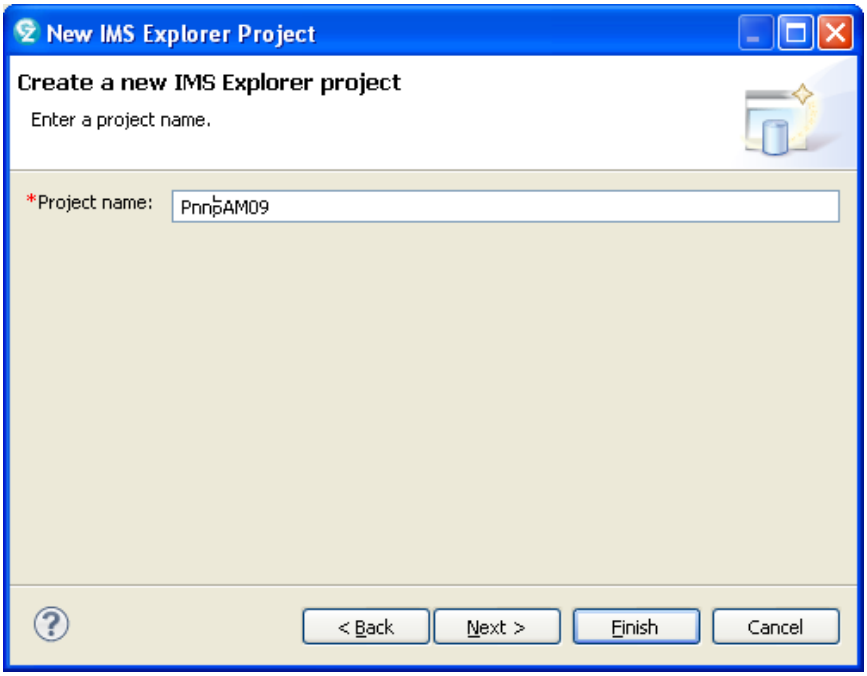


2. Click on **File > New > IMS Explorer Project.** **(**If you don't see "IMS Explorer Project" as a choice then click on File > New > Other and open the IMS folder and select IMS Explorer Project)





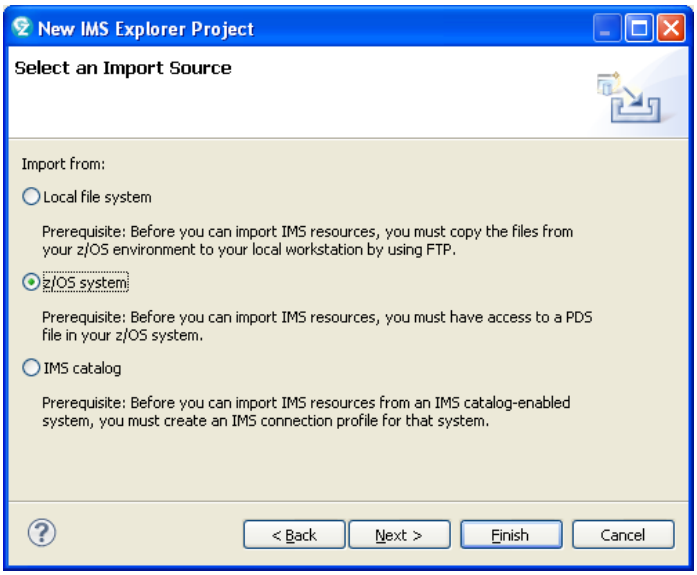
3. Define a Project Name, e.g., P***nn***SAM09 where ***nn*** is your team number.



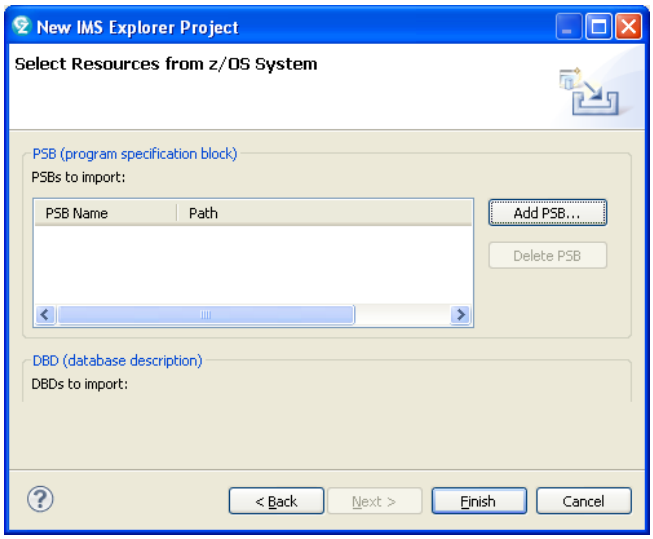
Click **Next.**

On the **Select an Import Source** window you can: (a) Use a Local file system if you have previously downloaded the source PSB and DBD files to your workstation, (b) Select a z/OS system and connect directly to where your DBDs/PSBs are stored, or (c) If your IMS is at Version 12 with the Catalog function enabled, you can obtain the Metadata directly from the IMS Catalog. **For this lab (Part 1) we will use a connection to the z/OS system and download source from z/OS to create the Metadata**.

4. Select z/OS system to obtain the source.



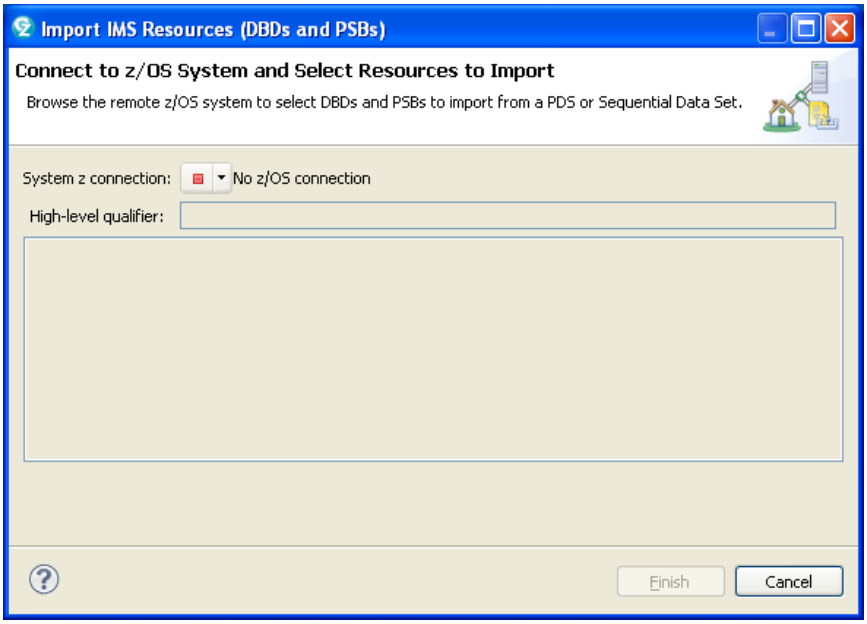
Click **NEXT.**



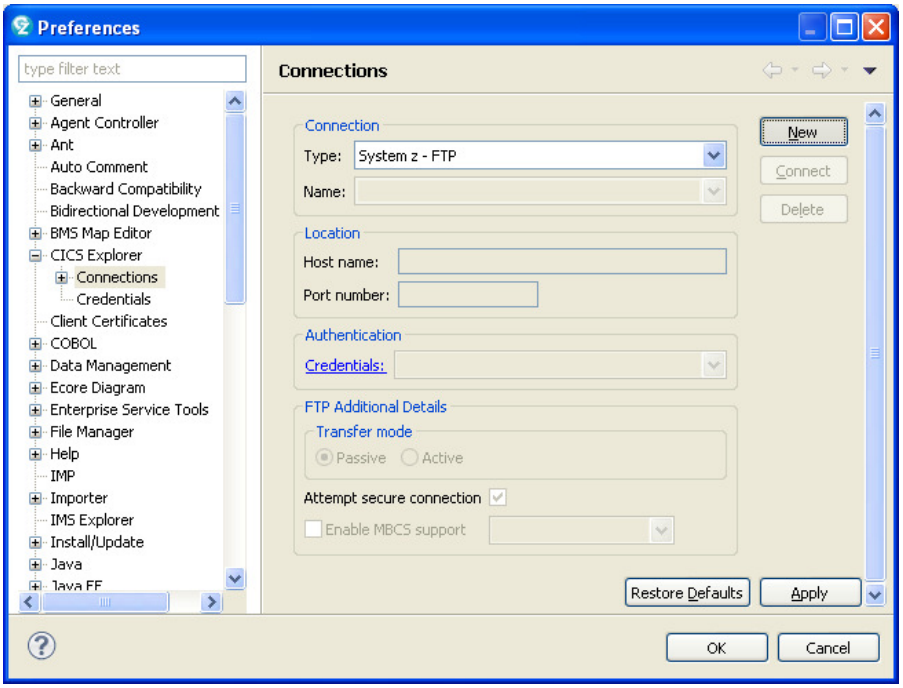
Select the **Add PSB** button.

You will be asked to provide the z/OS connection information.

5. On the **Connect to z/OS System and Select Resources to Import** screen, click on the **No z/OS connection** to open the Connections box.



Select **New.**

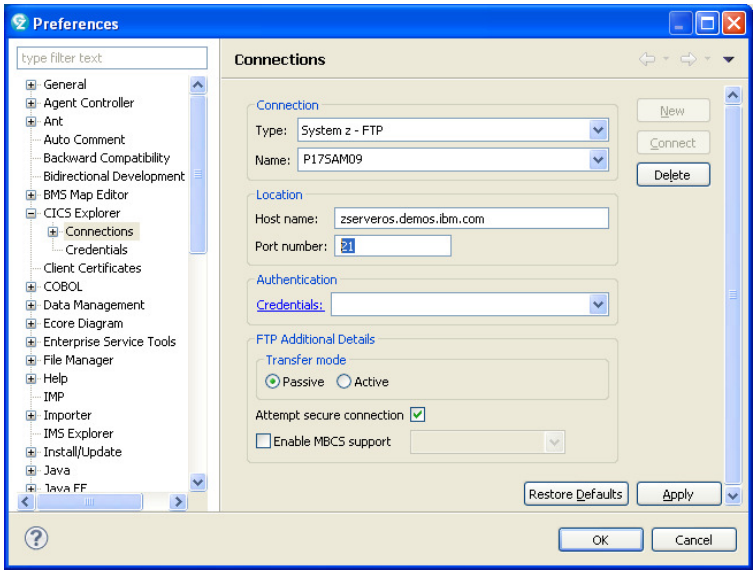


In the **Name** field enter P***nn***SAM09 where ***nn*** is your team number

In the **Host name** field enter **zserveros.demos.ibm.com**

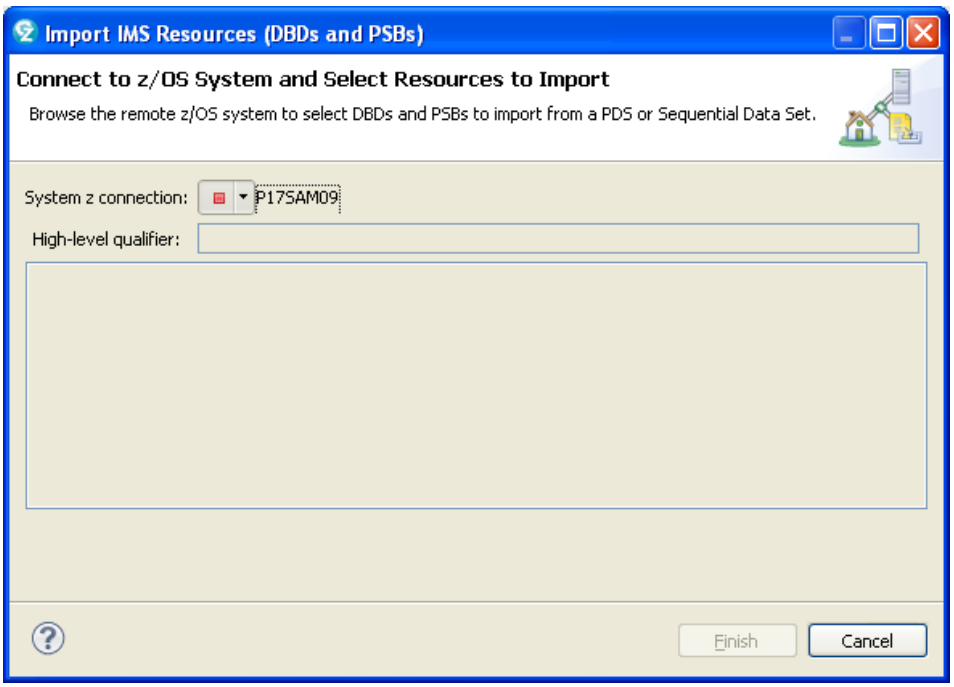
Keep the **Port Number** as 21 (FTP port) and **Transfer mode** as Passive.

Click **Apply** and then **OK.**

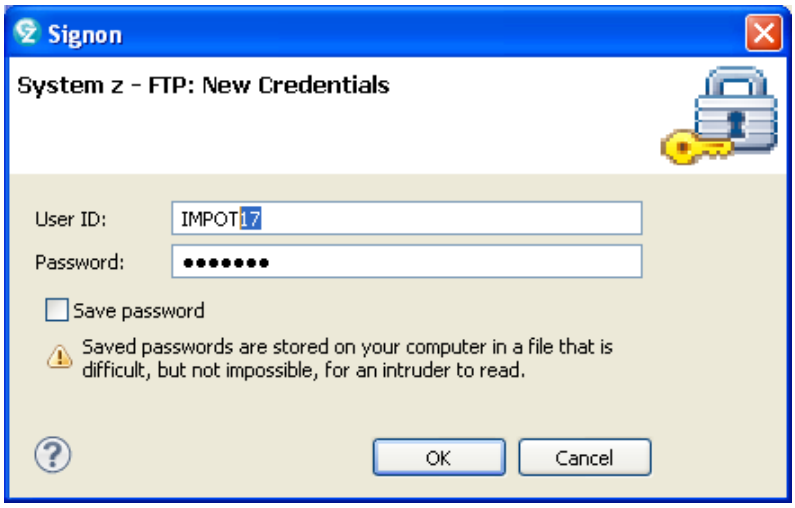


You will return to the **Connect to z/OS System and Select Resources to Import**

box which now has your connection name.

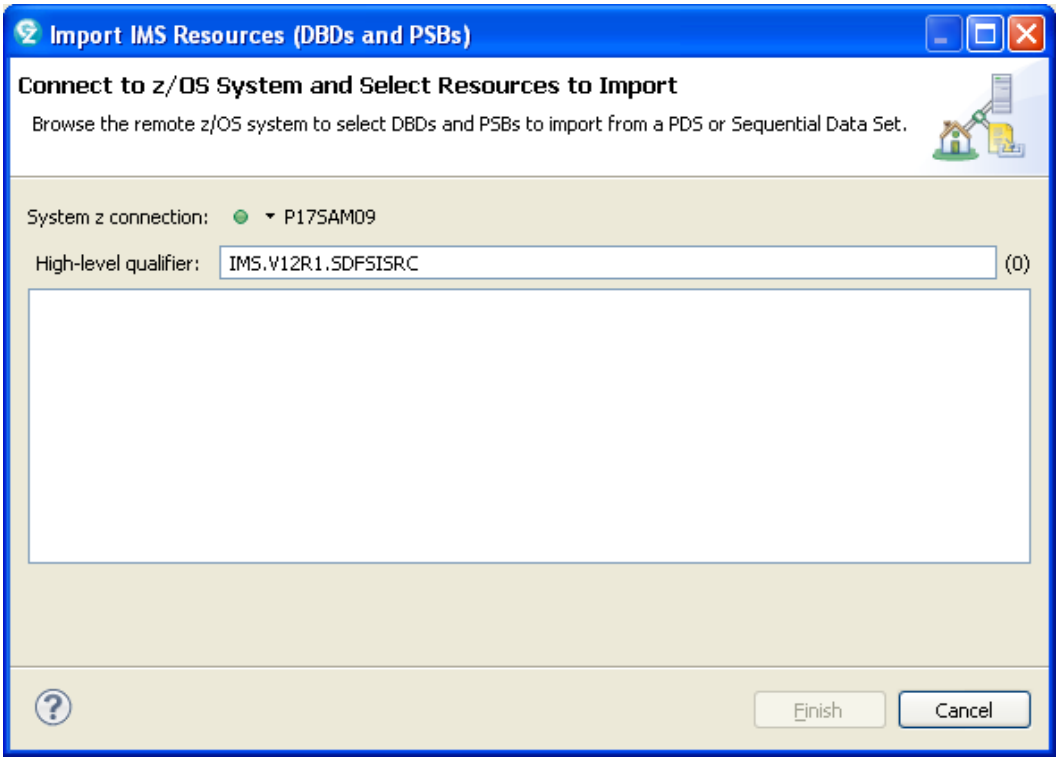


To establish a connection, **click the orange box** (choose the connection you created) to open the **System z –FTP New Credentials** box.



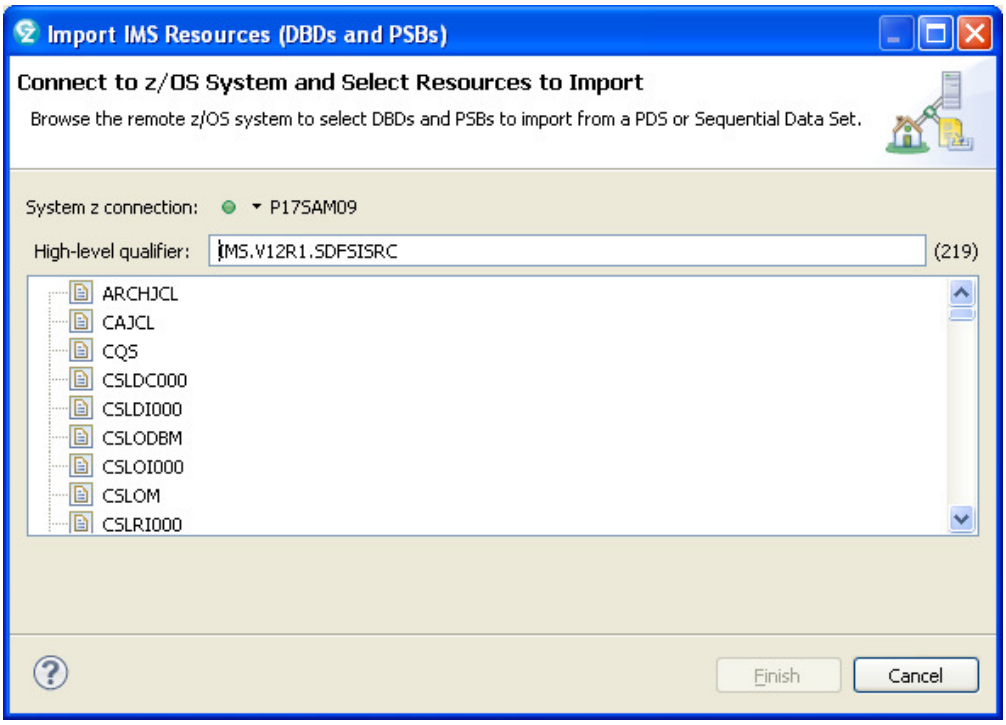
In the userid field enter IMPOT***xx*** where xx is your team number.
In the password field enter value provided by lab instructor.
Click **OK** to establish the connection.

6. You are now ready to retrieve your IMS resources.

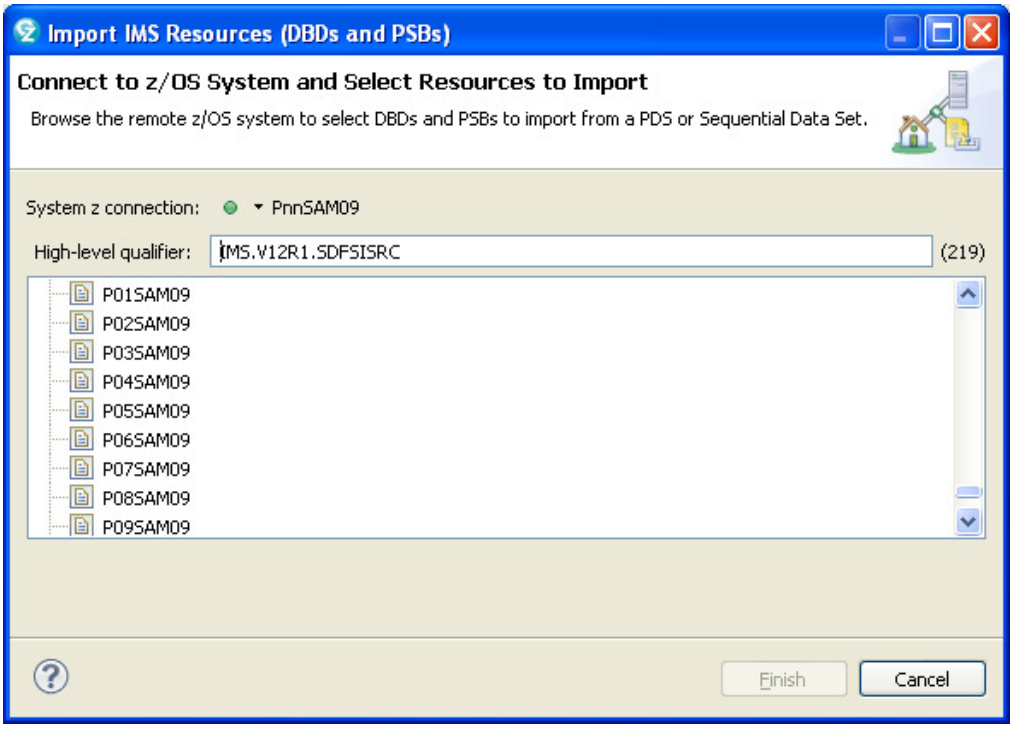


Change the **High-Level qualifier** field to **IMS.V12R1.SDFSISRC** and hit **Enter** on your

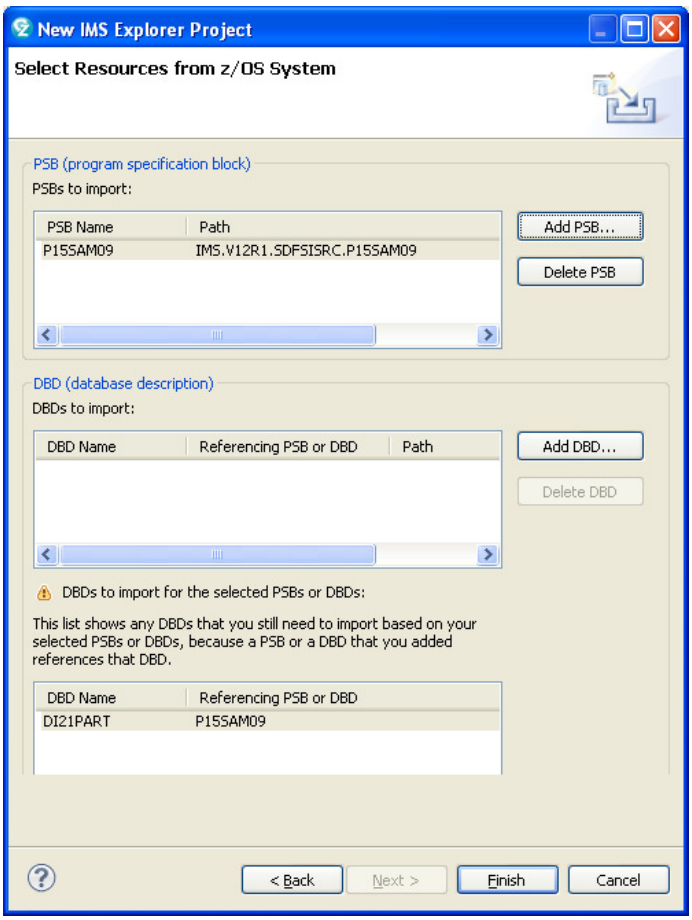
PC keyboard.



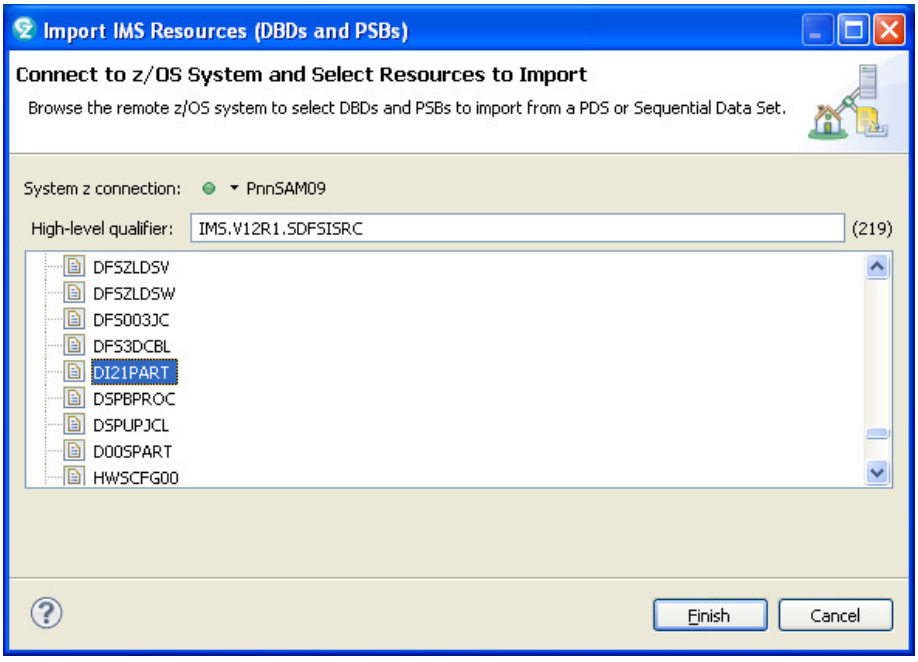
Scroll down the list and select your PNNSAM09 PSB



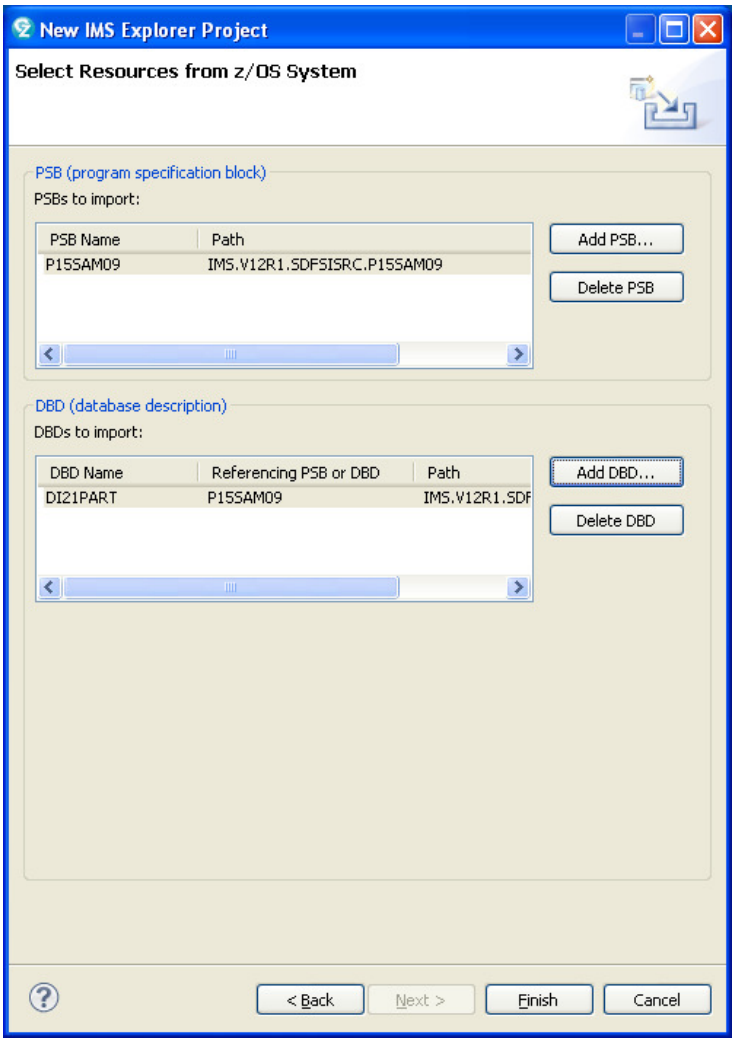
Click **Finish** to activate the parsing of the PSB and DBD.



Note you will be prompted to add the DBD DI21PART. Select the **ADD DBD** button and then scroll and then select **DI21PART** Click **FINISH**.



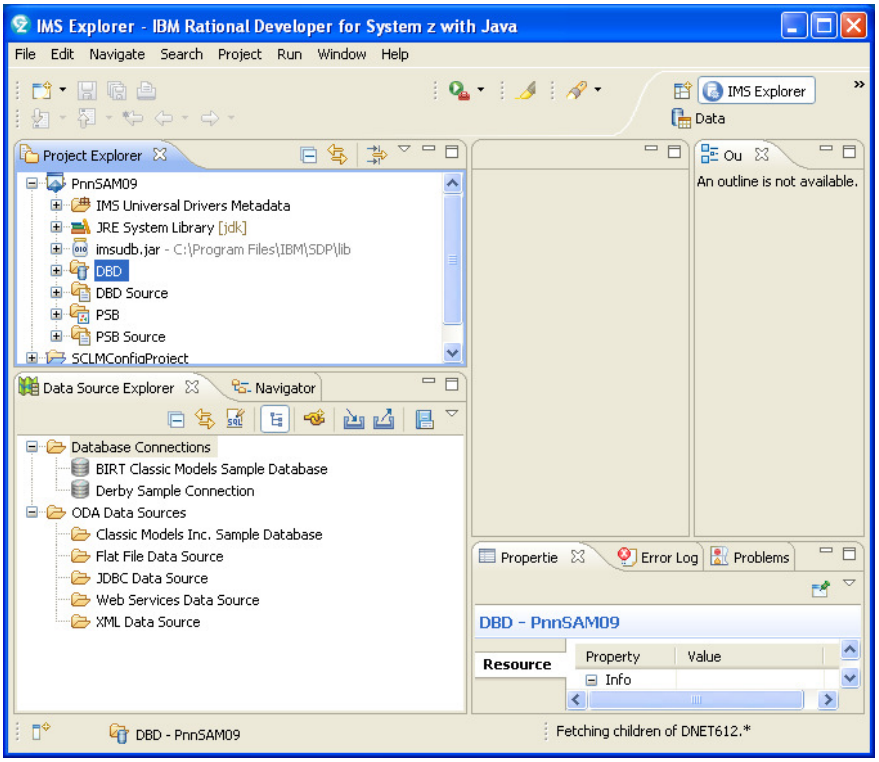
After parsing completes, your project is created.



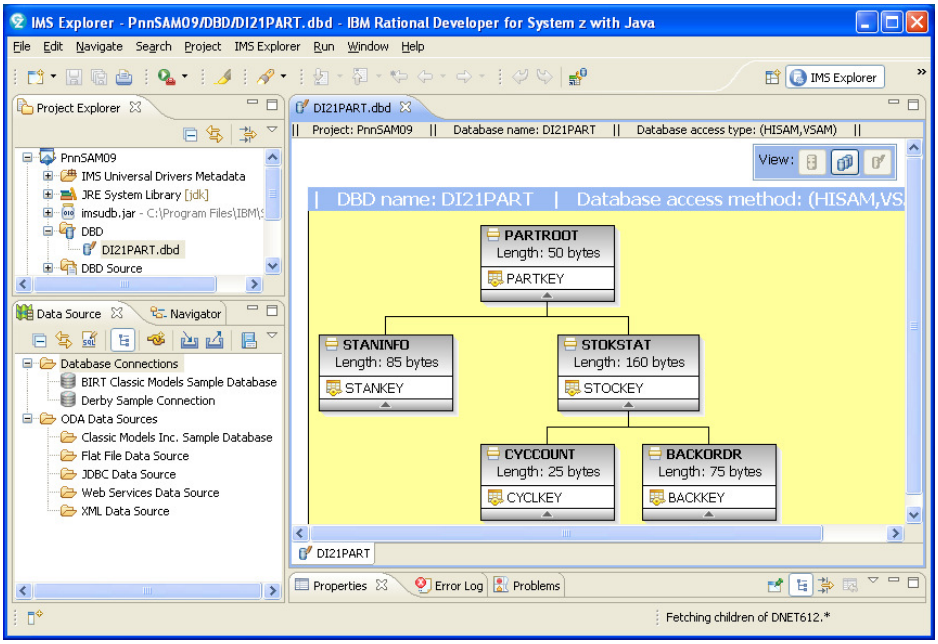
Click on **Finish.**

Now it is time to add the fields to the segments that were not defined in the DBD but are available in a Cobol Copybook.

7. In the **Project Explorer** box, click the + to open your P***nn***SAM09 project and navigate to the DBD folder.

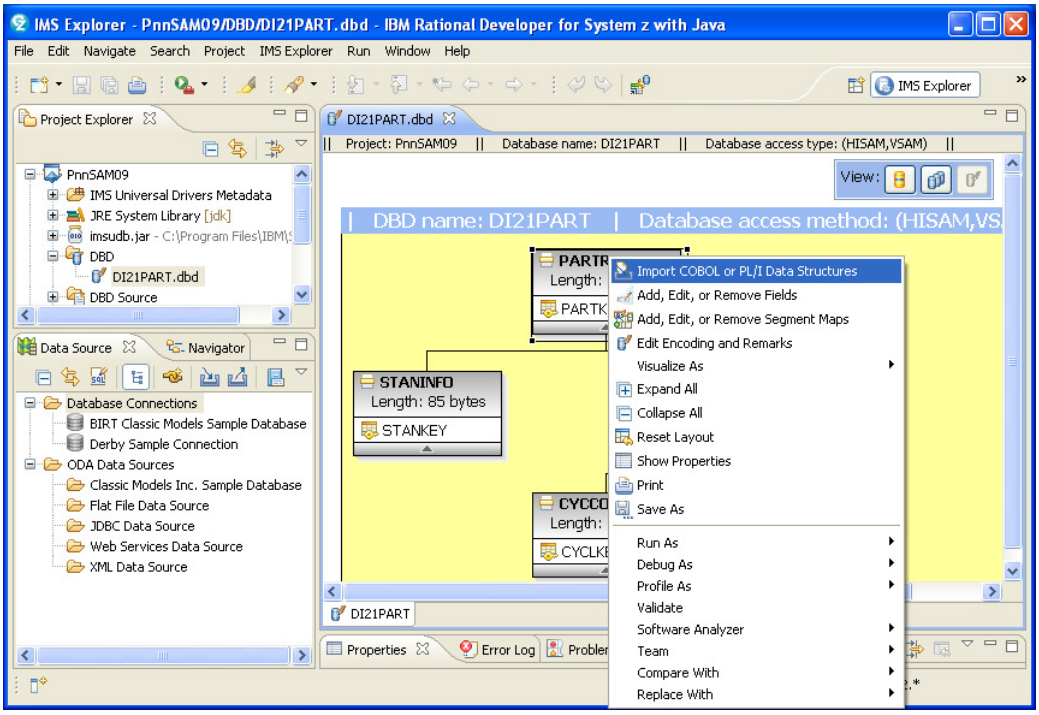


To open the basic view double click on DI21PART.



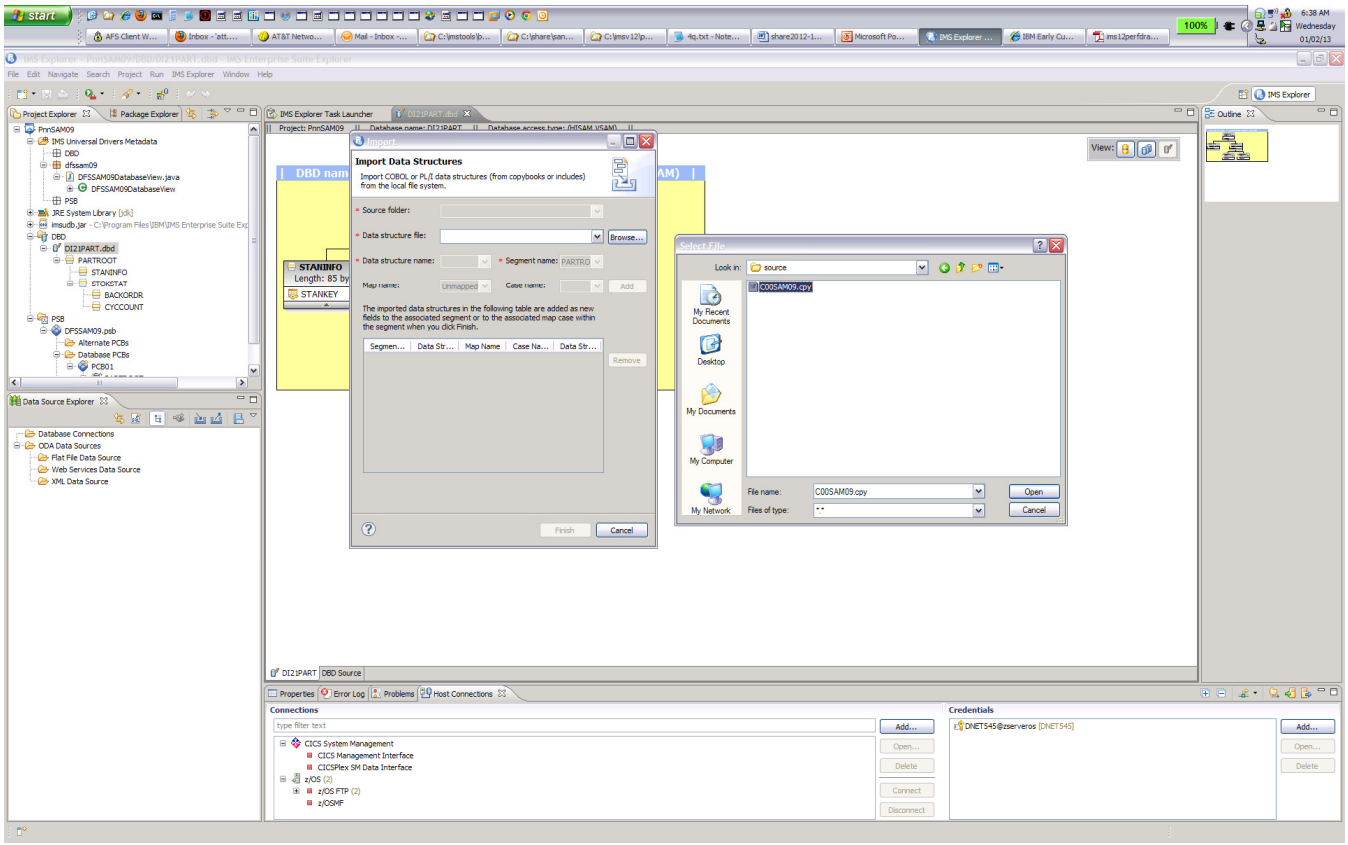
You will see a graphical representation of the database.

The Manage Fields function is used to add more fields to the segment since only the key fields are defined. Right click on PARTROOT and select **Import COBOL or PL/I Structures.**

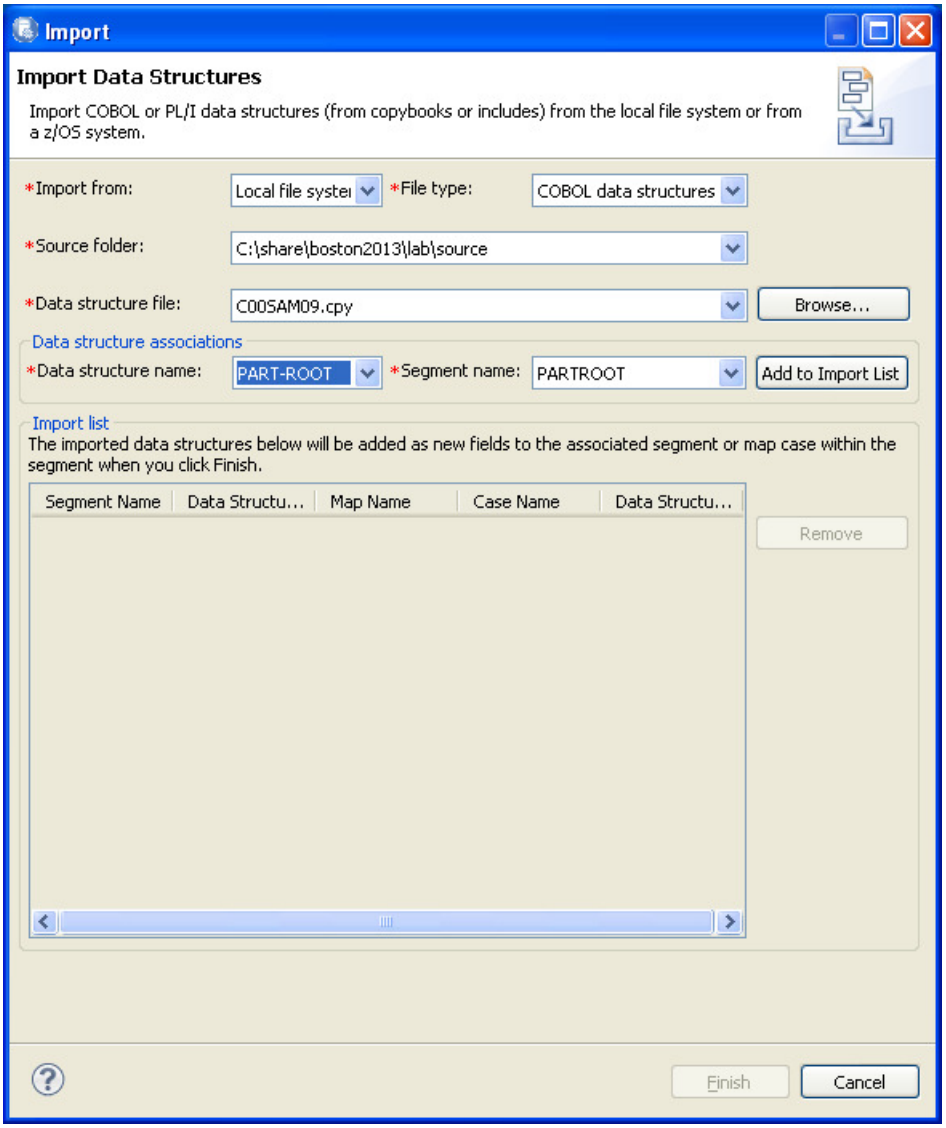


The **Import Data Structures** box opens. You will need to import the COBOL structures. The copybook was previously downloaded to your workstation. Select the **Browse** button and look for the following directory **C:\share\boston2013\lab\source.**

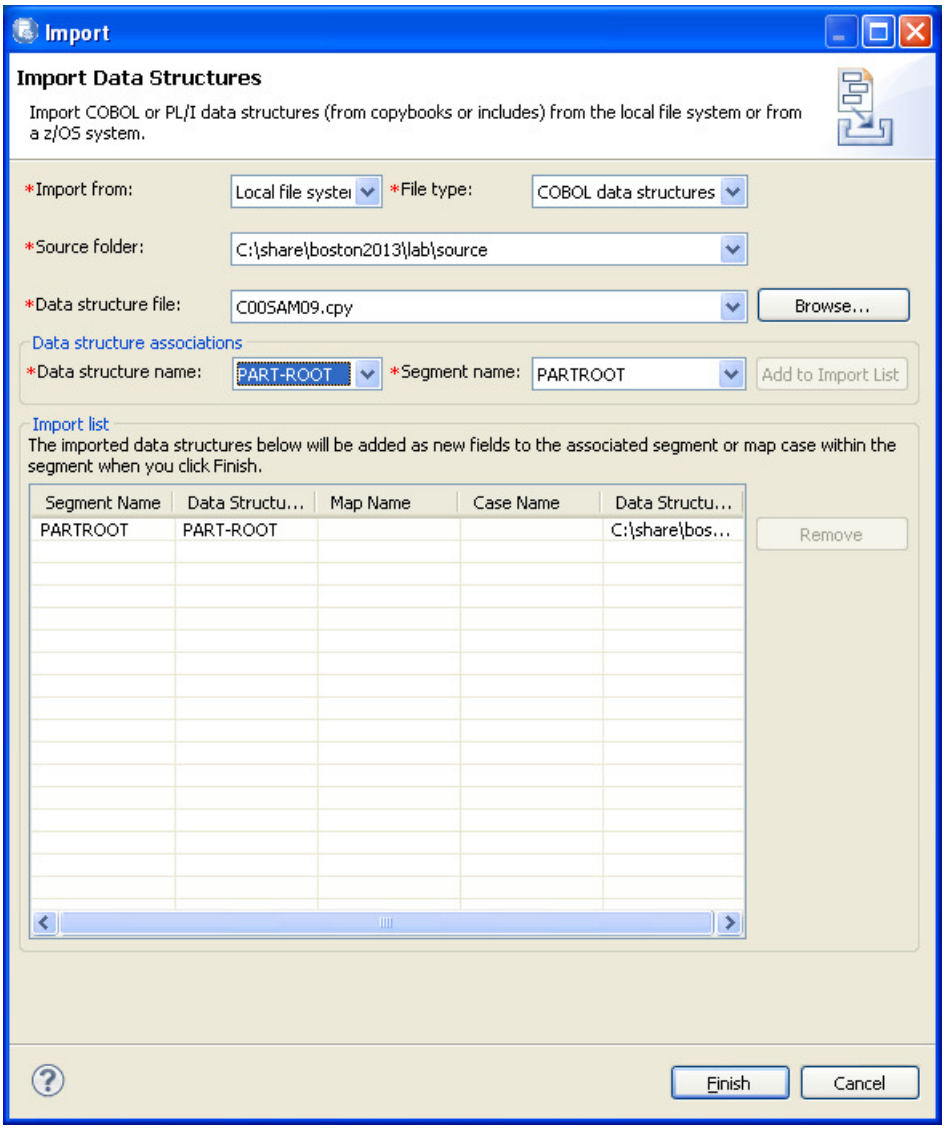
Select **C00SAM09** and click **Open.**



Use the Drop down list to specify the structure for the PARTROOT segment.

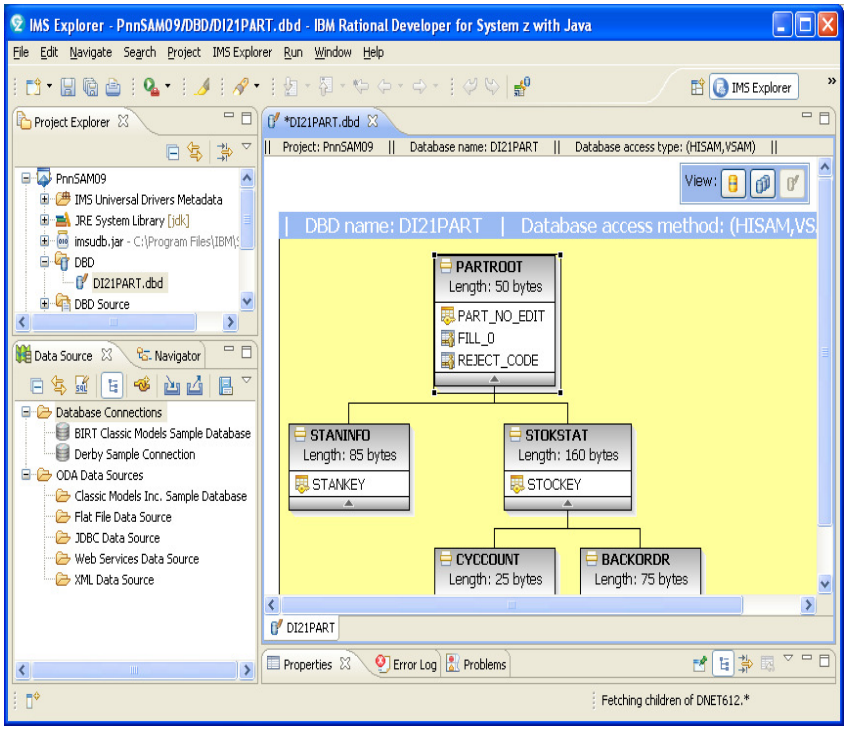


Select **Add to Import List** button.

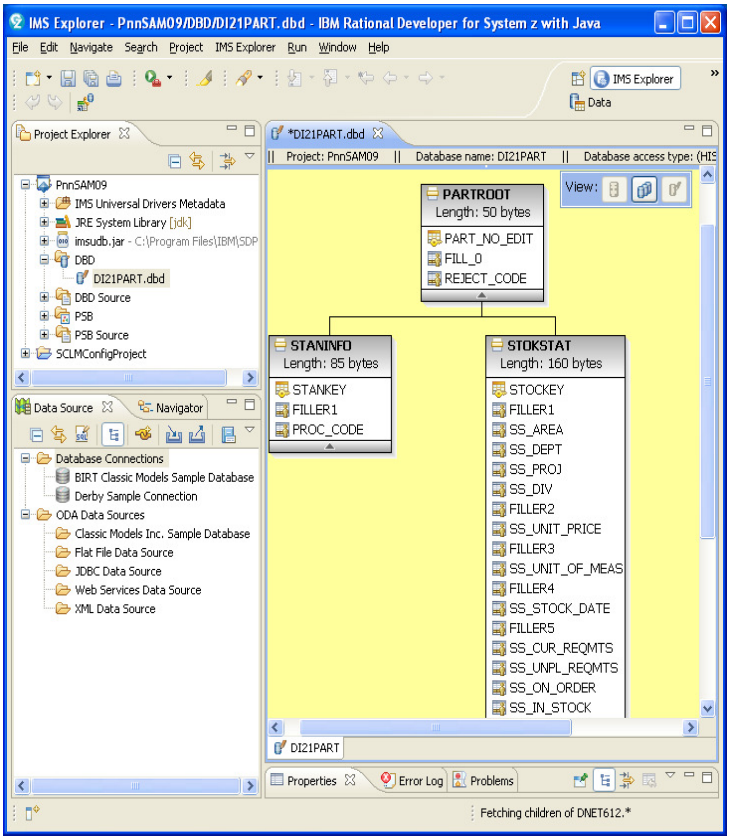


Click **Finish** to complete the import process.

The PARTROOT segment (table) will now have all the fields (columns).



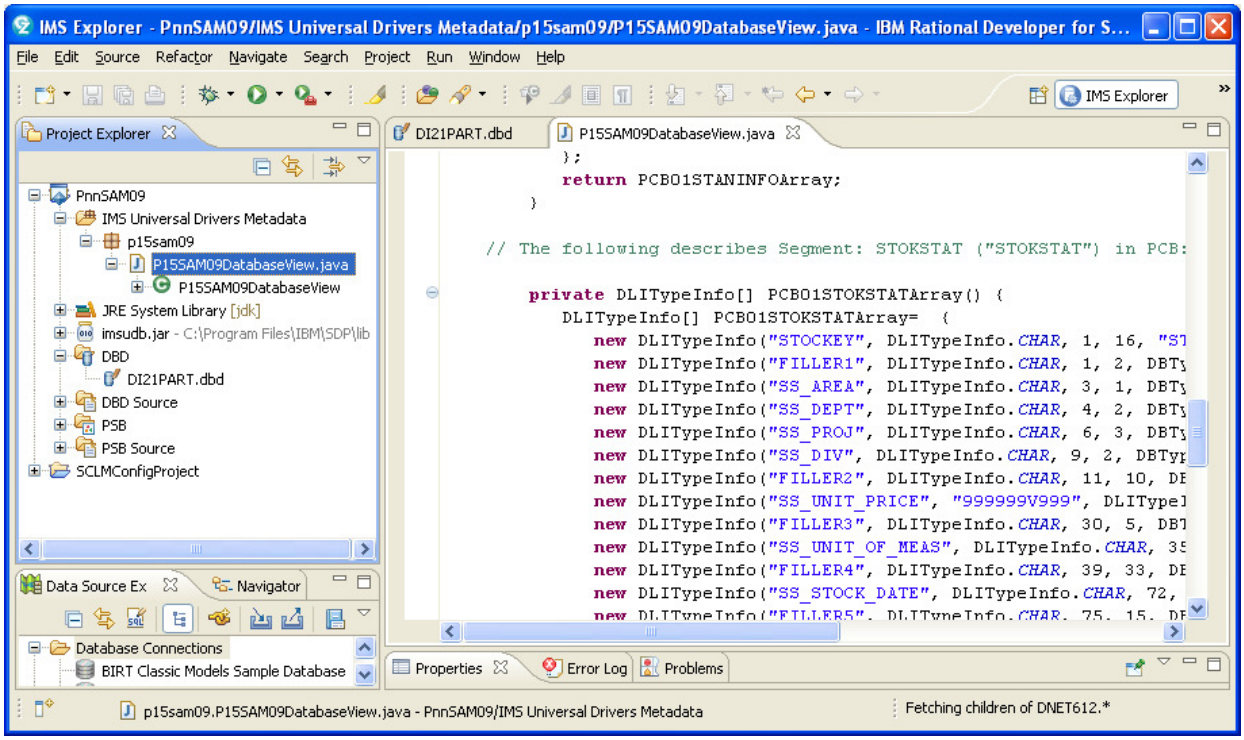
Repeat the above process for the other segments.



This completes the field definitions.

Use **Ctrl-S** to save the changes or just use the **x** tab to close the view.

In the **Project Explorer** box, Follow the path **IMS Universal Drivers Metadata** > P***nn***sam09 and double-click P***nn***SAM09DatabaseView.java to view the updates to the metadata.



This completes the building of the metadata.

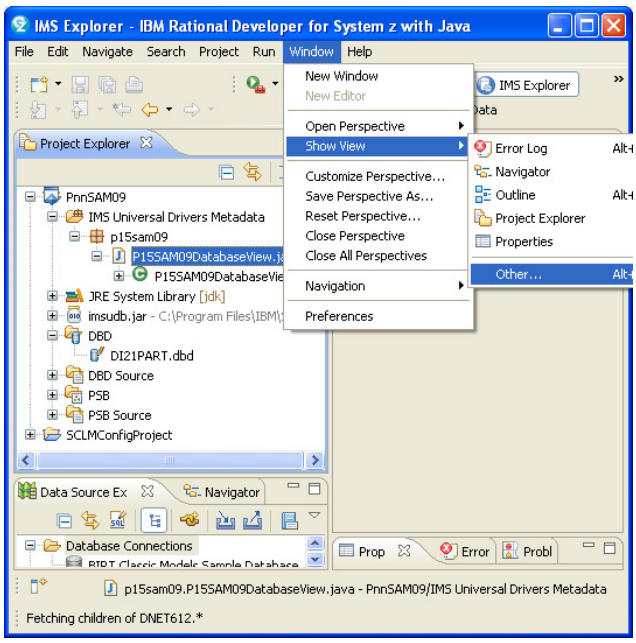
8. You are now ready to use the Data Store Explorer (DSE) to access the IMS PART database using the metadata you just created.

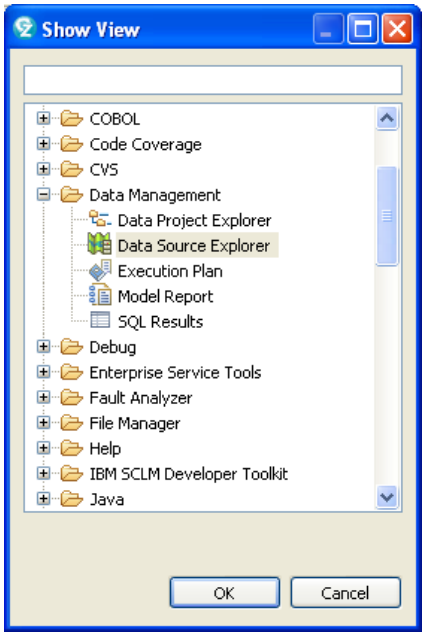
To connect to an IMS database use the **New Connection** wizard to create a connection profile, so that you can connect to an IMS database and browse existing data objects.

If you already have the **Data Source Explorer** box open at the bottom of your IMS Explorer window then you can skip the following instructions.

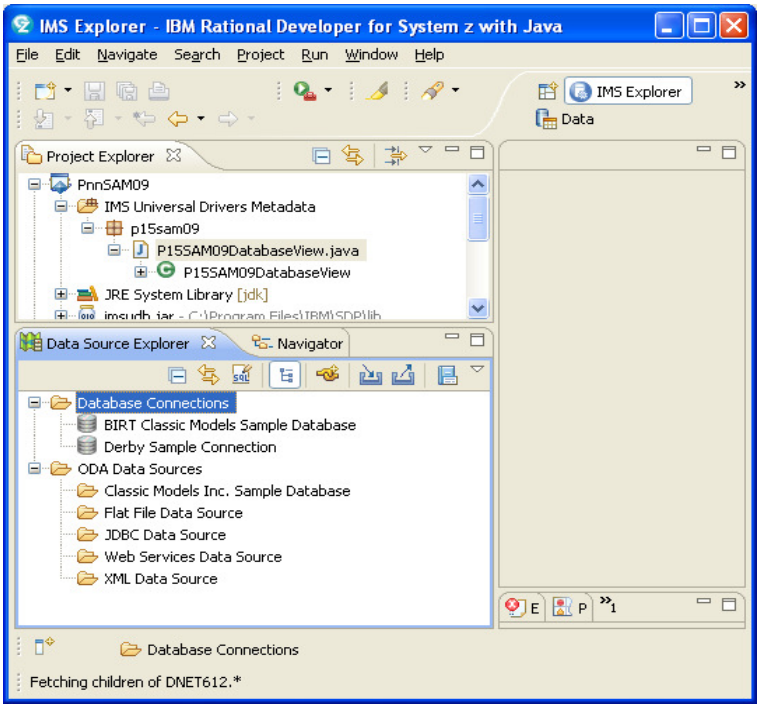
If you do not have the **Data Source Explorer** box then click on the **Window** tab at

the top of the IMS Explorer tool and follow the path: **Show View > Other.** In the **Show View** > **Other** box, click **+ Data Management,** select **Data Source Explorer** and click **OK.**

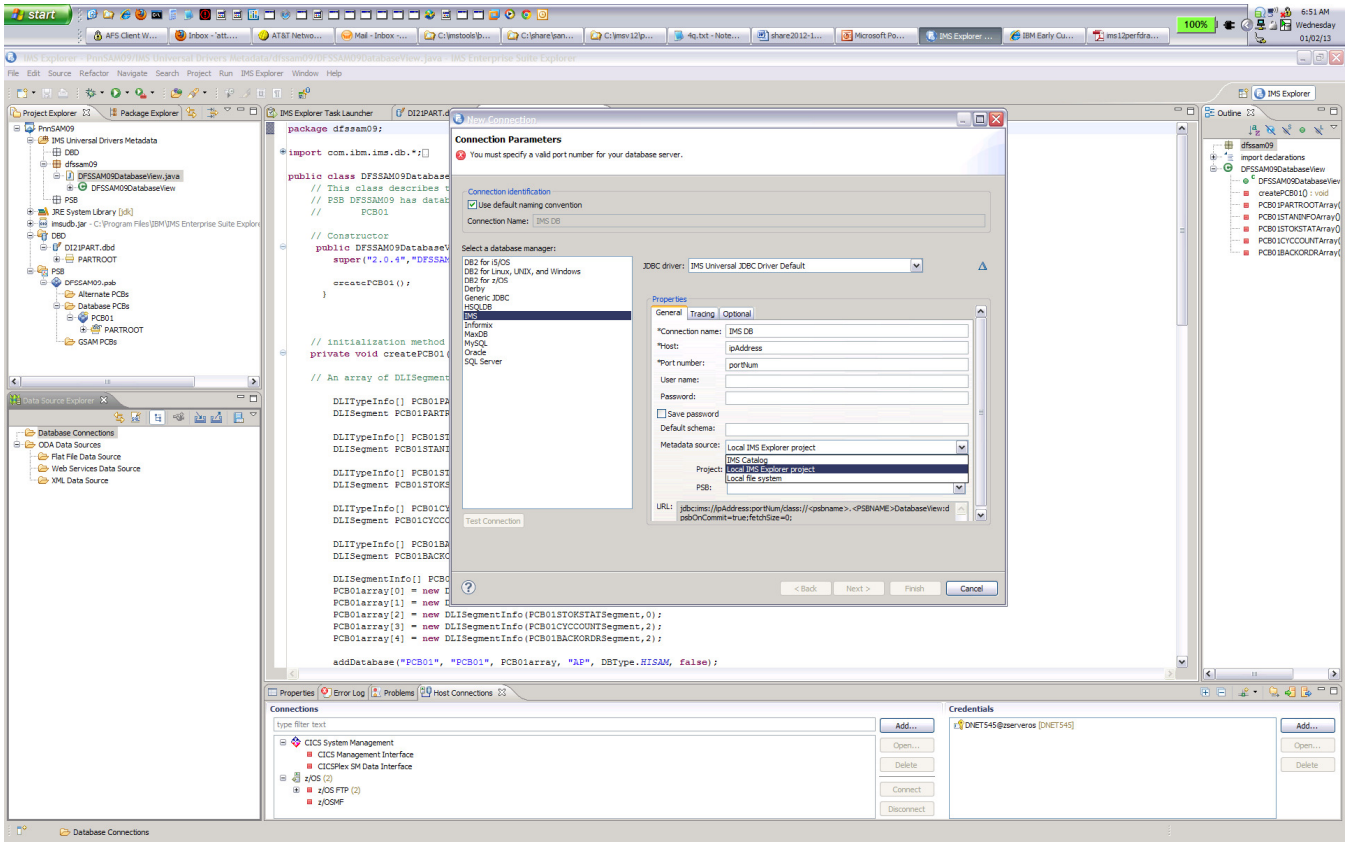




In the **Data Source Explorer**, right-click the **Database Connections** folder, and click **New**.



The **New Connections** box opens up. Select **IMS** as the database manager and the driver name **IMS Universal JDBC Drive**r as the JDBC driver.



Under Properties General tab

In the **Connection Name** field enter **IMPOT**xx where *xx* is your team number

In the **HOST** field enter **zserveros.demos.ibm.com**

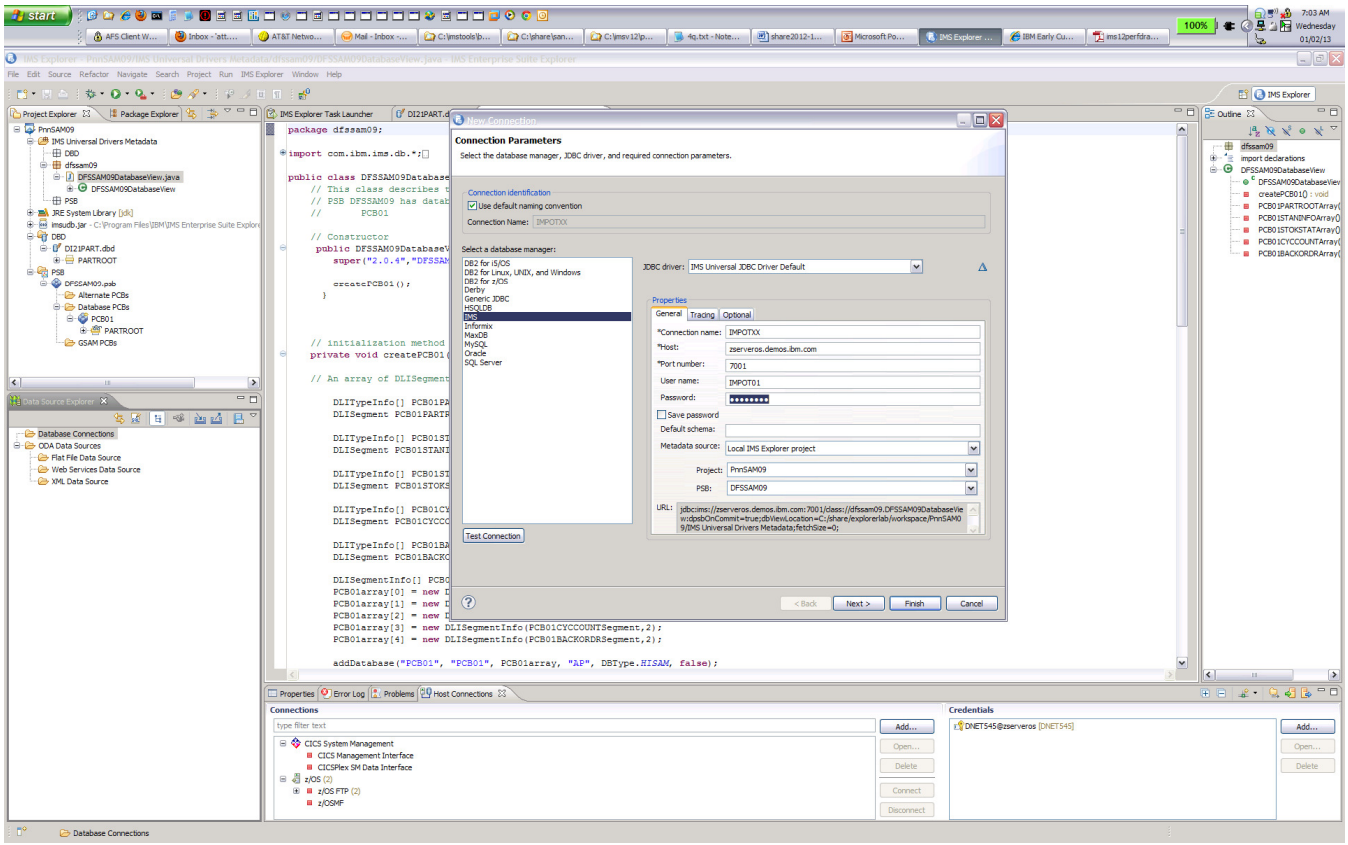
In the **Port number** field enter **7001**

In the **userid** field enter **IMPOT**xx where *xx* is your team number

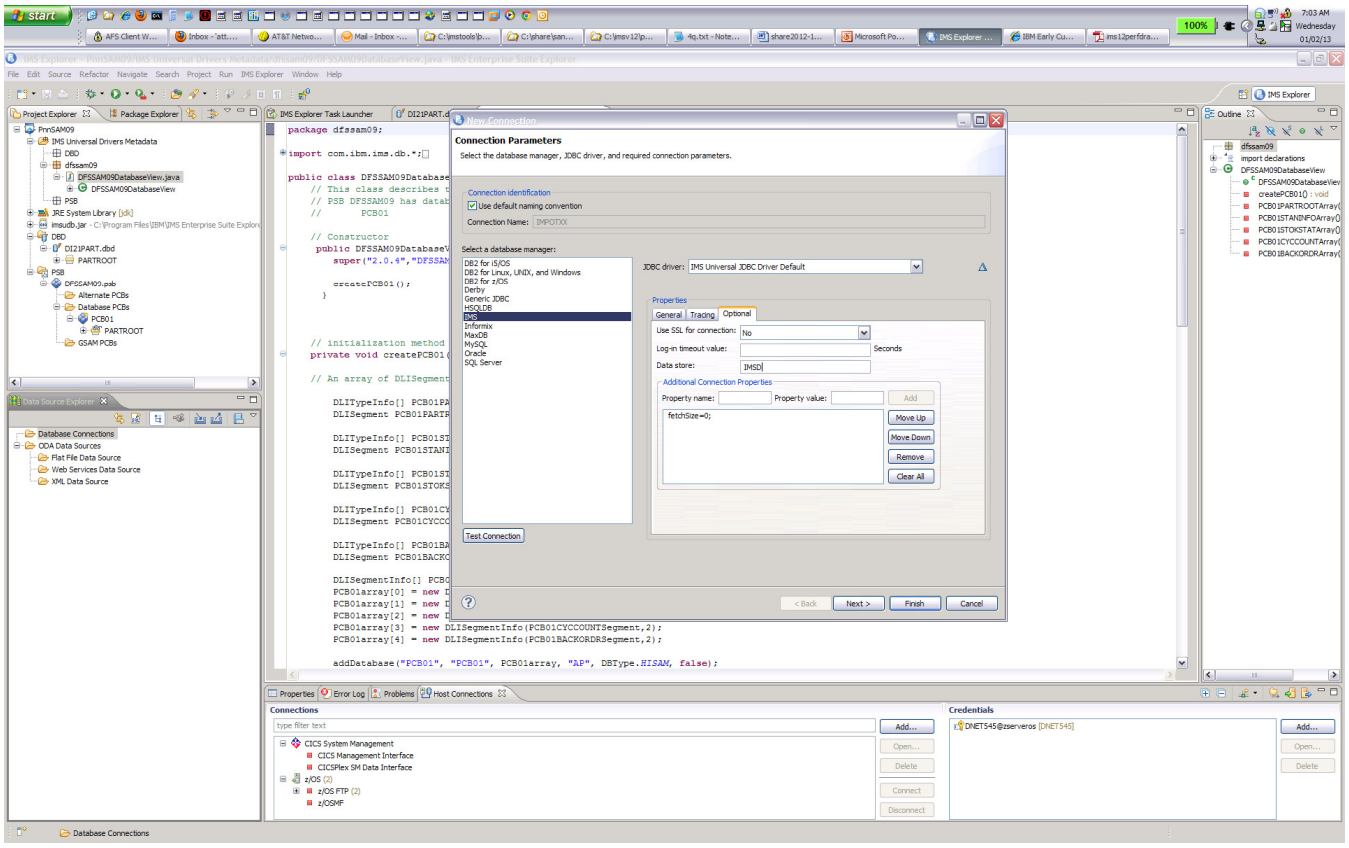
In the password field enter value provided by lab instructor

In the Metadata source drop down list select **Local IMS Explorer project**

From the **Project** drop down list, select your project, e.g., P***nn***SAM09



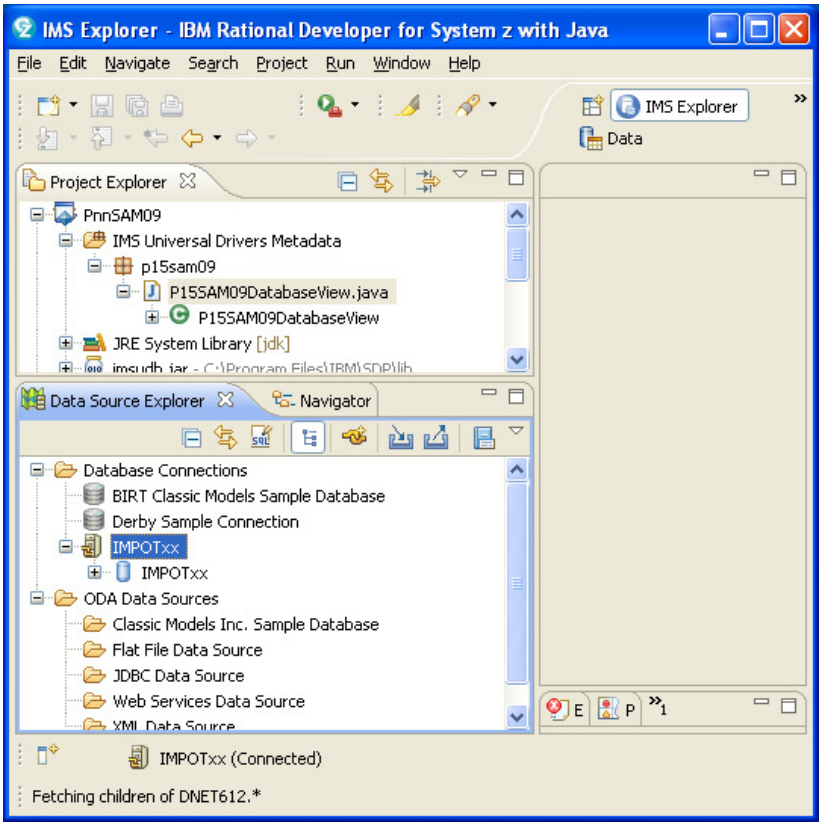
Under Properties select Optional tab



In the **Data store:** field enter **IMSD**

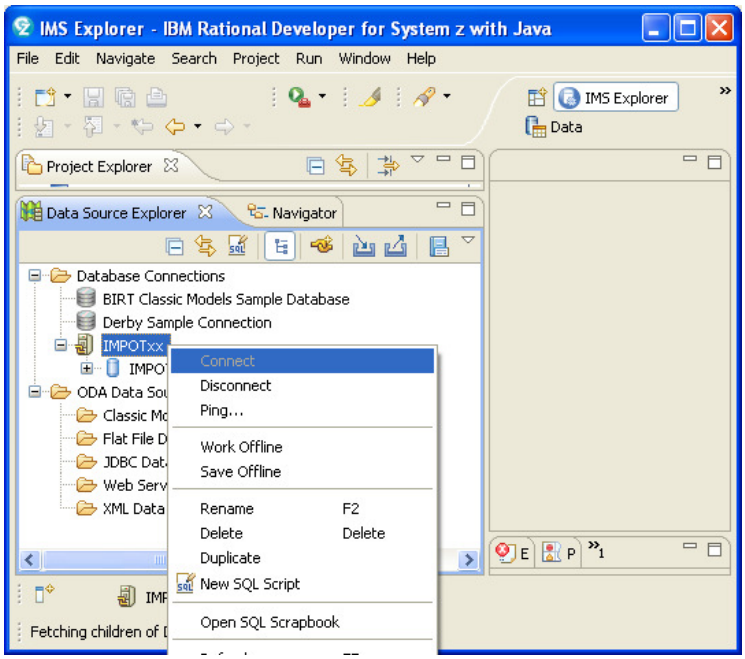
Click **Finish**.

The connection is displayed in the Data Source Explorer.



The preceding picture shows that the connection is active. If you need to disconnect or re

Connect, all you have to do is right click on the connection name and choose your action.

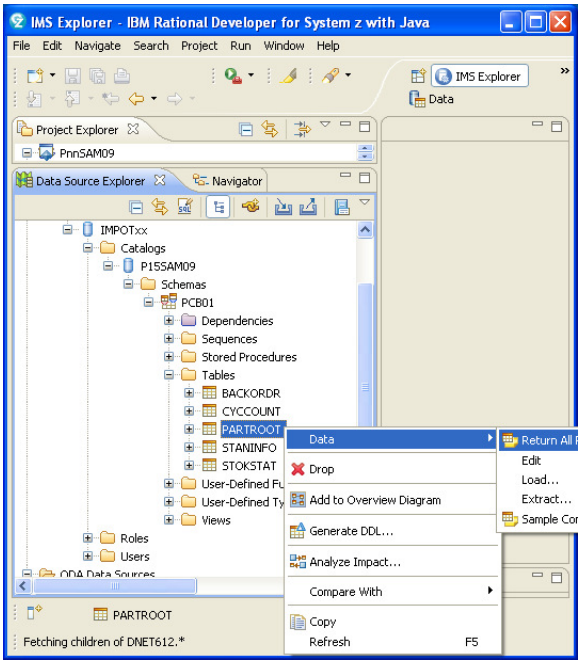


To test the connection in the **Data Source Explorer** section under **Database**

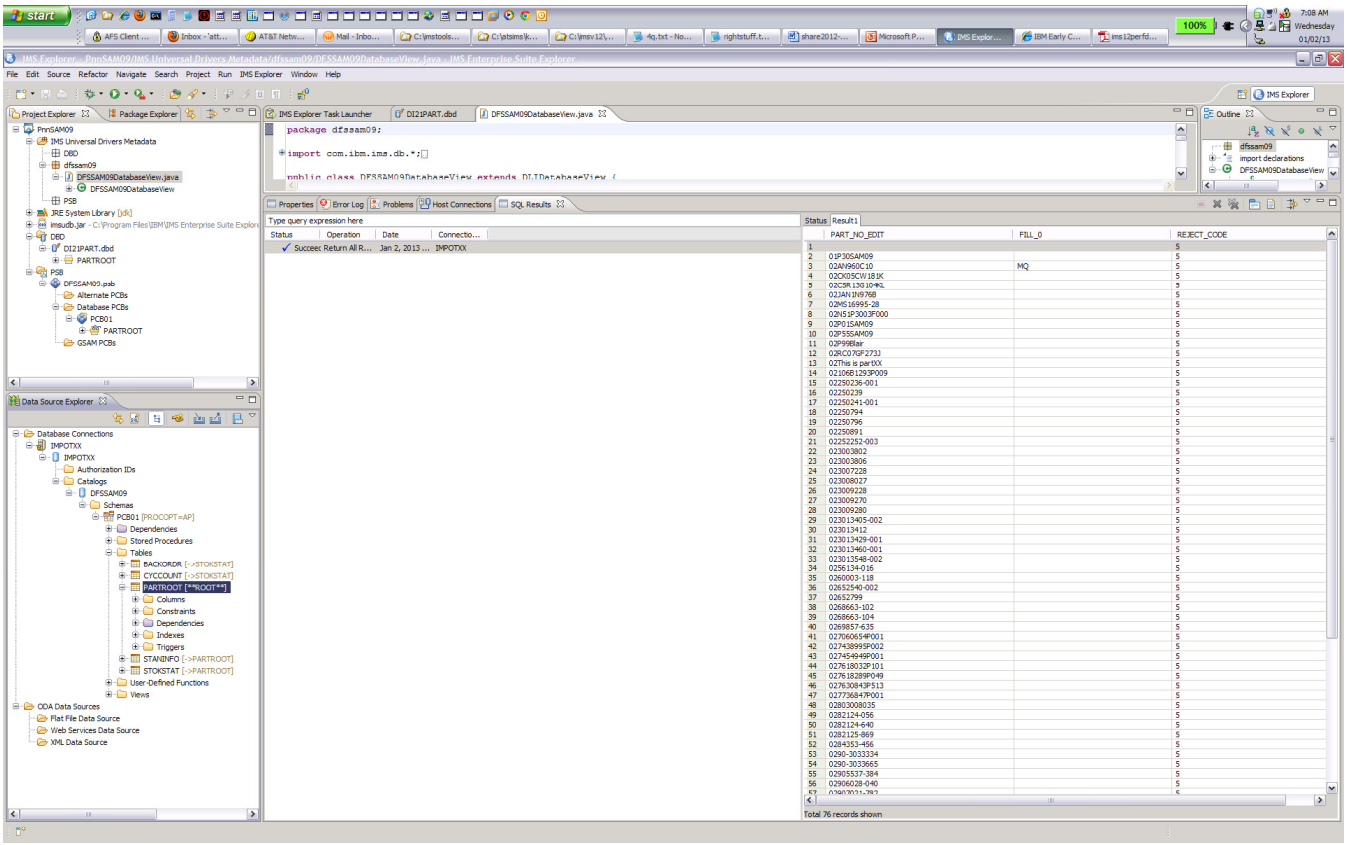
Connections, right click on the connection name you defined, e.g., **IMPOT***xx*.

Expand the path until you can select PARTROOT. Right click and select **Data** then

click on R**eturn All Rows** to return data.



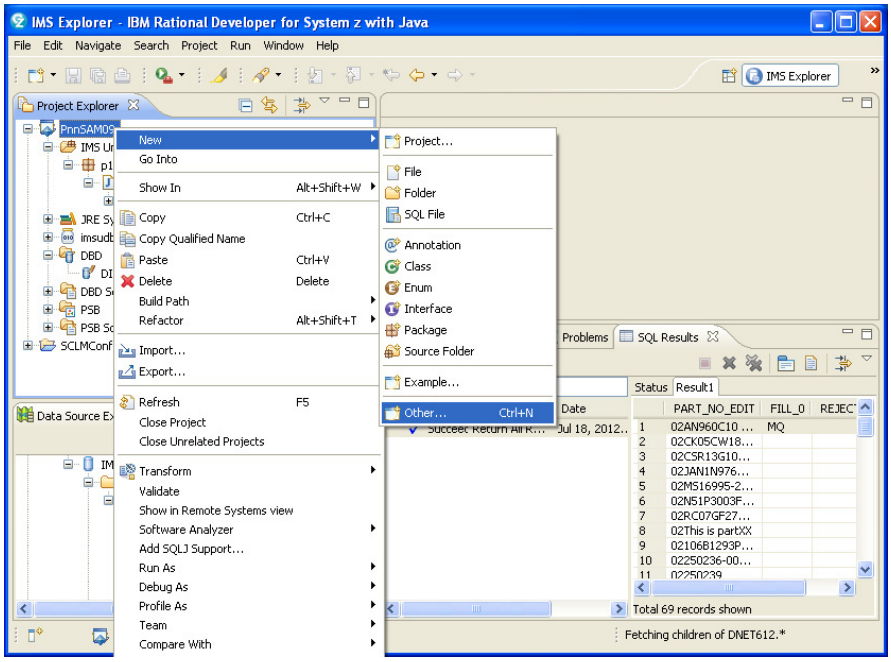
The results will be available in the box on the right under **SQL Results**.



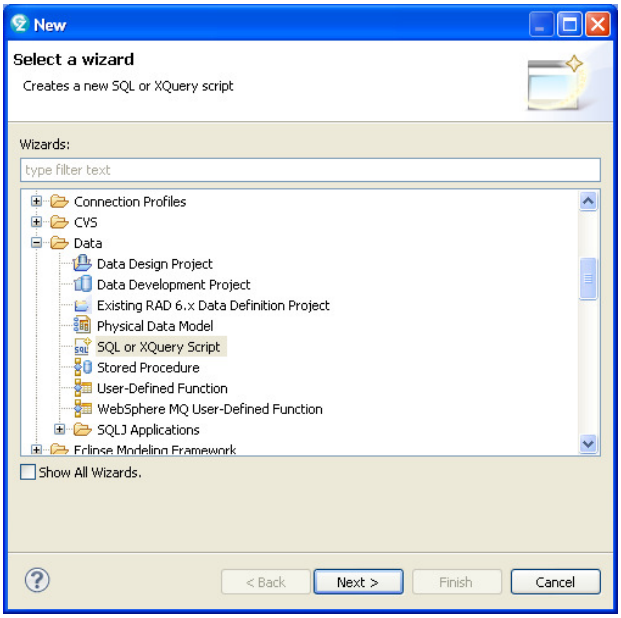
You can now also issue additional queries. In between queries, you might need to disconnect/reconnect the connections. Try looking at other tables/columns.

9. You can also try creating SQL calls using the **SQL Query Builder**.

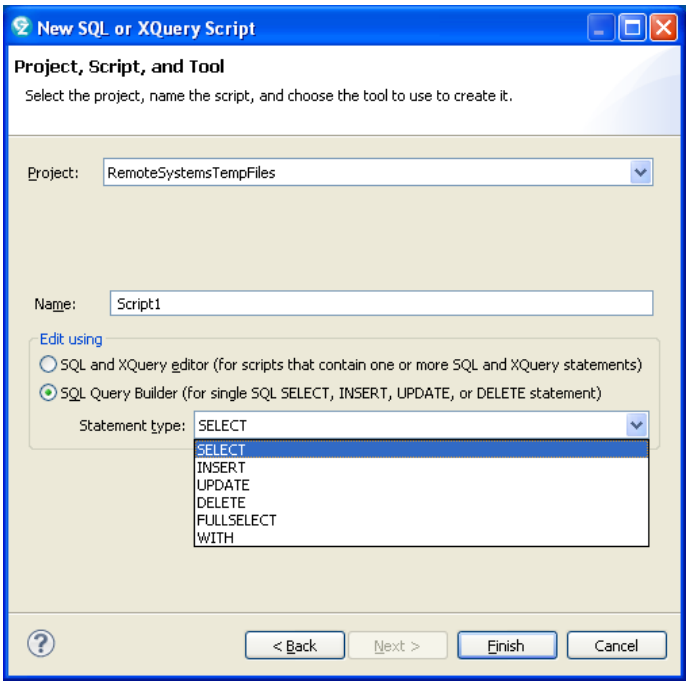
In the **Project Explorer** box, select your project e.g., P***nn***SAM09.
Right click **New > Other**



In the **Select a Wizard** box expand the **Data** folder and select **SQL or XQuery Script** then click **Next**.

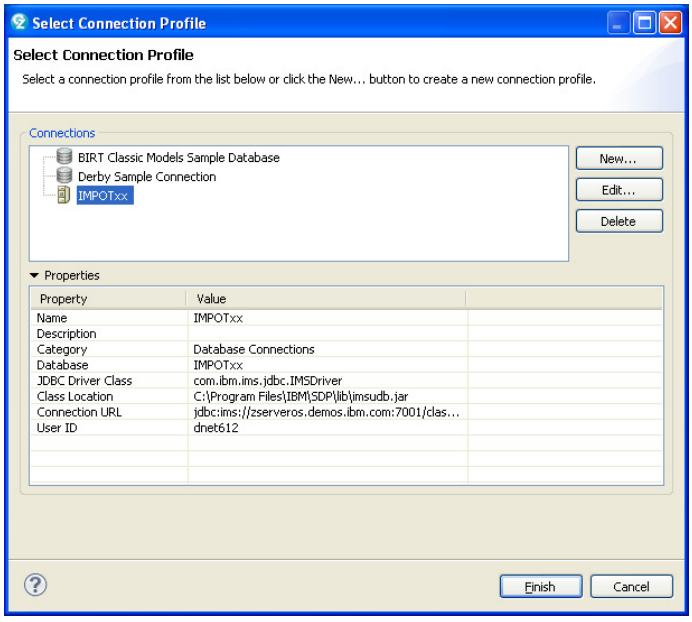


You will see the **New SQL or Xquery Script** box change **Name** to **SelectScript1.** Choose your **Project** P***nn***SAM09 from the dropdown list. Under the radio button **SQL Query Builder** note that you can choose your Statement type. The default is **Select.**



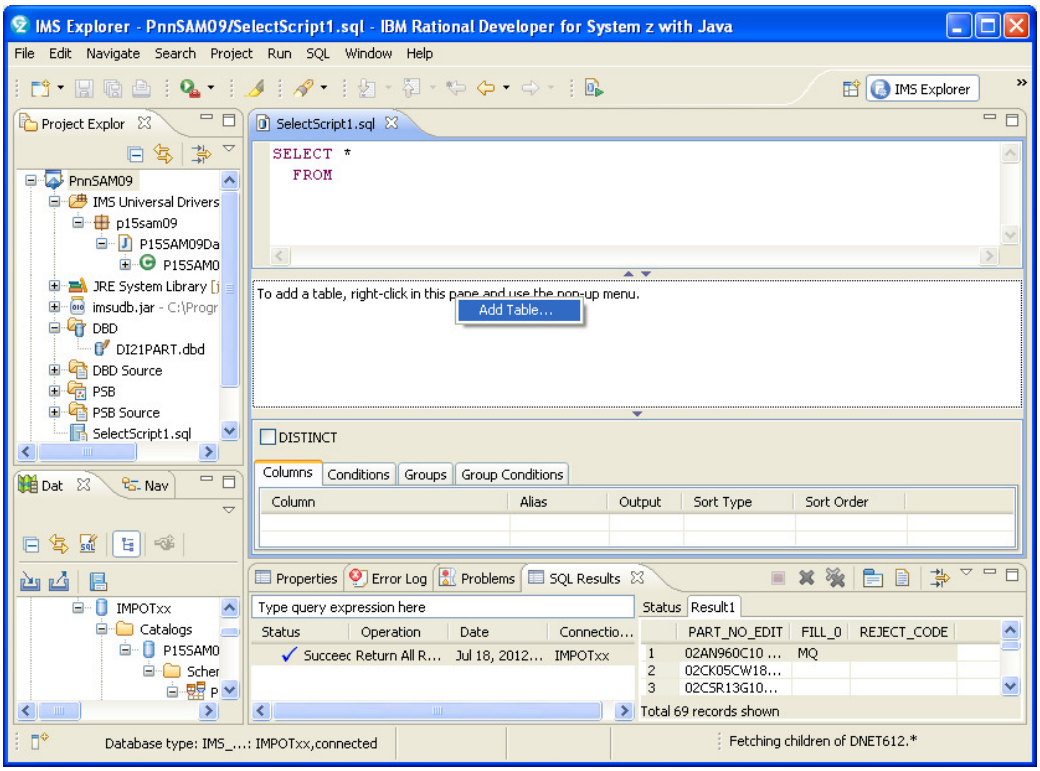
When you have changed the values, click **Finish.**

You will need to select a connection profile for the database you want to access. Choose the one you created earlier, e.g., **IMPOT***xx.* Click **Finish.**

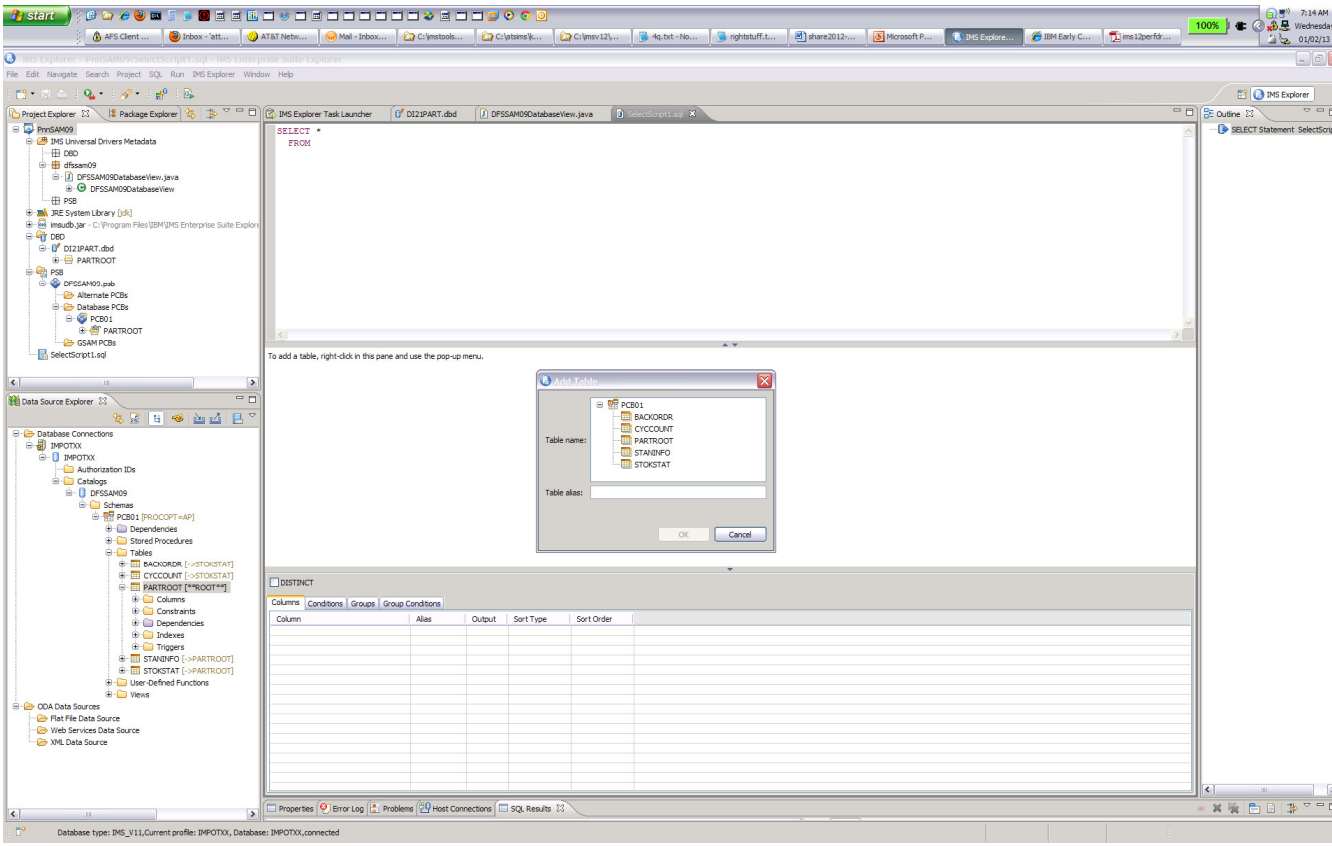


The SQL Query Builder Box opens upl

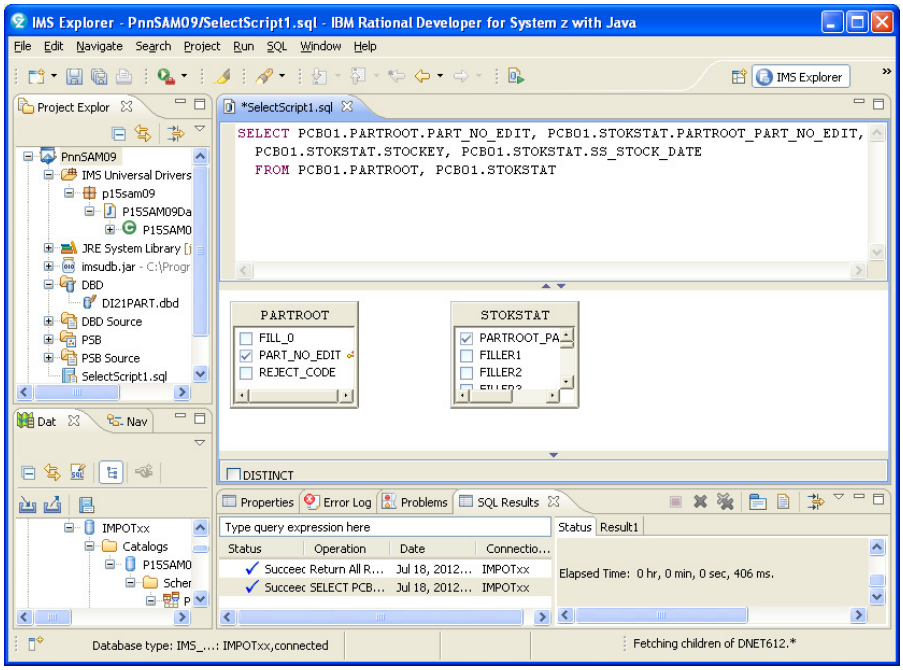
In the **Add a table** window right click and select **Add Table.**



Use the drop down list to specify segments (tables)

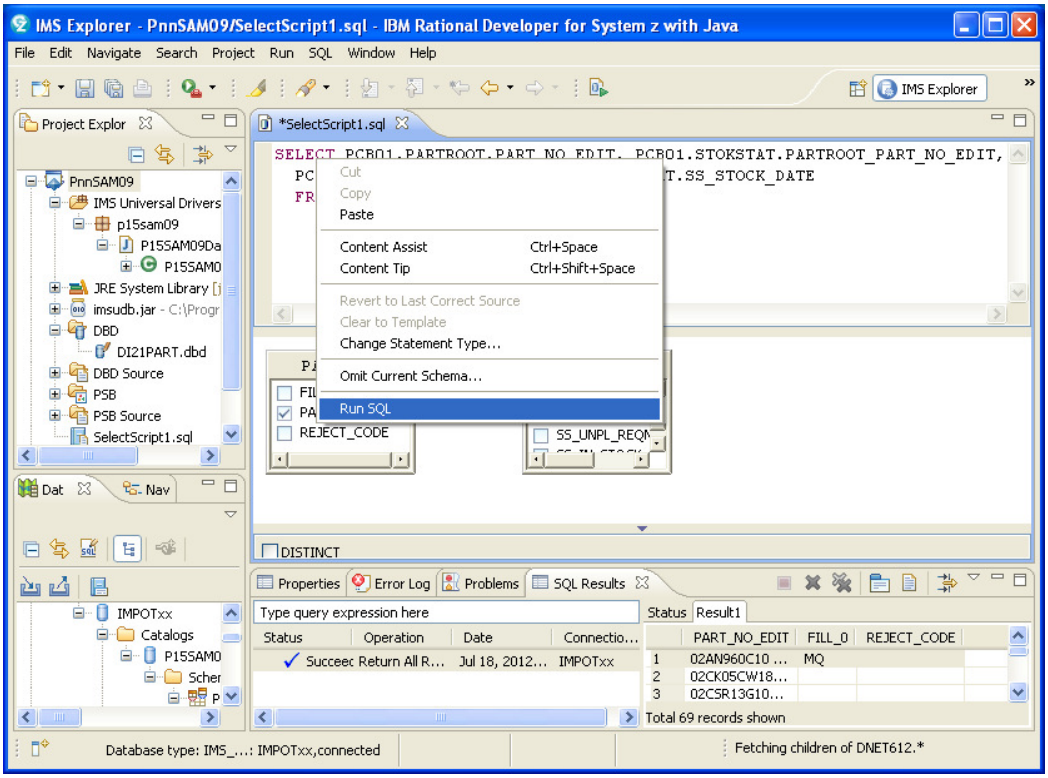


You will be able to choose which tables to add, and check which columns to include.

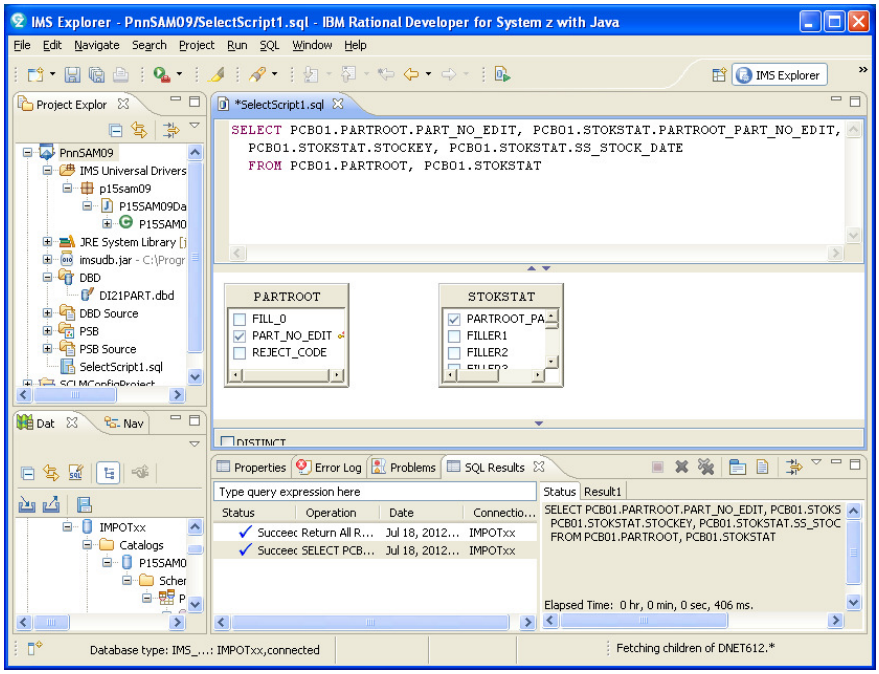


Note how the script is built.

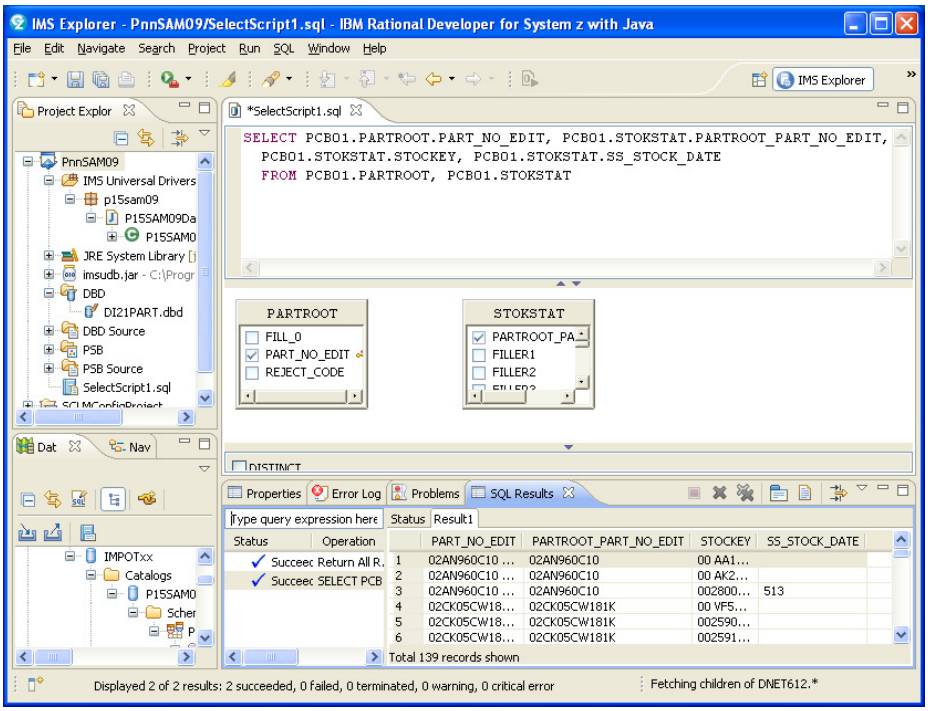
When you are done, position your cursor to the upper box, right click on the **Select** statement that was built and choose the **Run SQL** option.



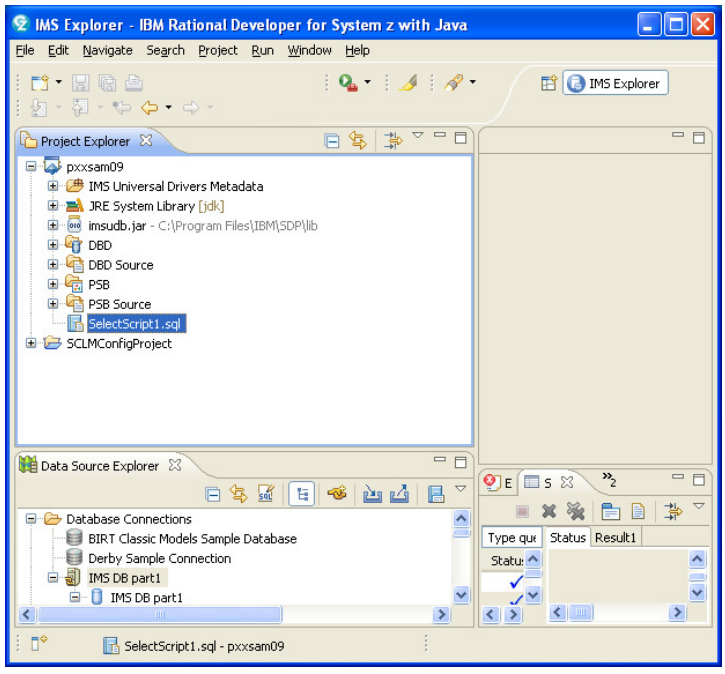
The results can be viewed in the bottom box.



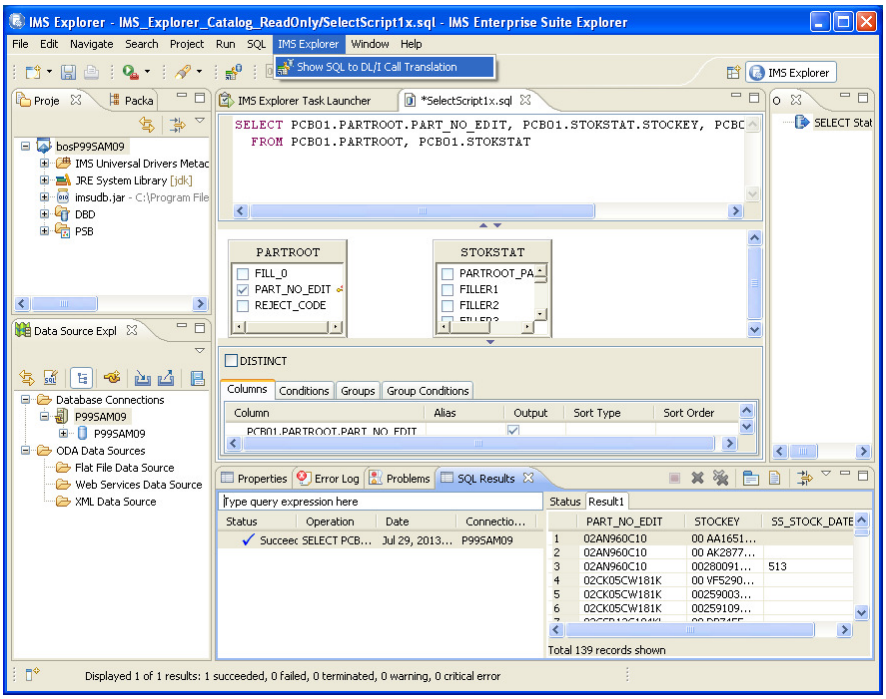
Note that there are two tabs. One for **Status** and one for **Results.**



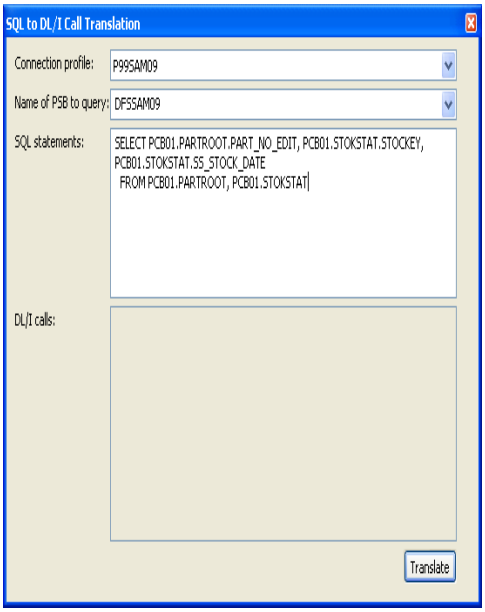
Save the **SelectScript1.sql** script you created by issuing Ctrl-s .

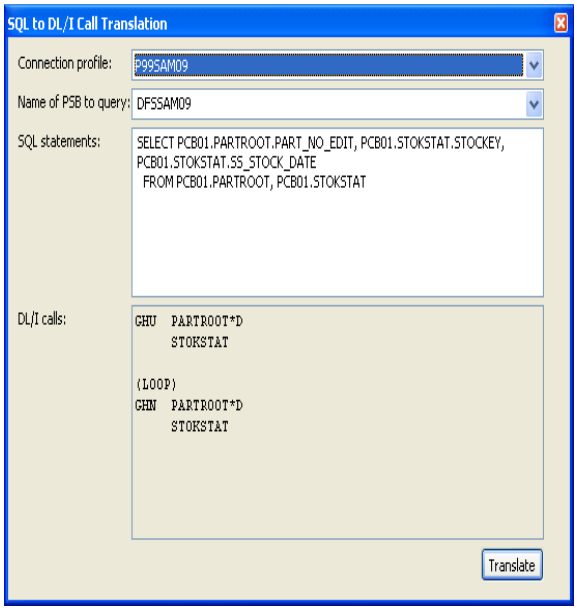


You can also review the DL/I calls that were generated to support the SQL request. Keeping the SelectScript1.sql window open, go to the top of the IMS Explorer window, click on **IMS Explorer** and then on **Show SQL to DLI call translation** tabs.

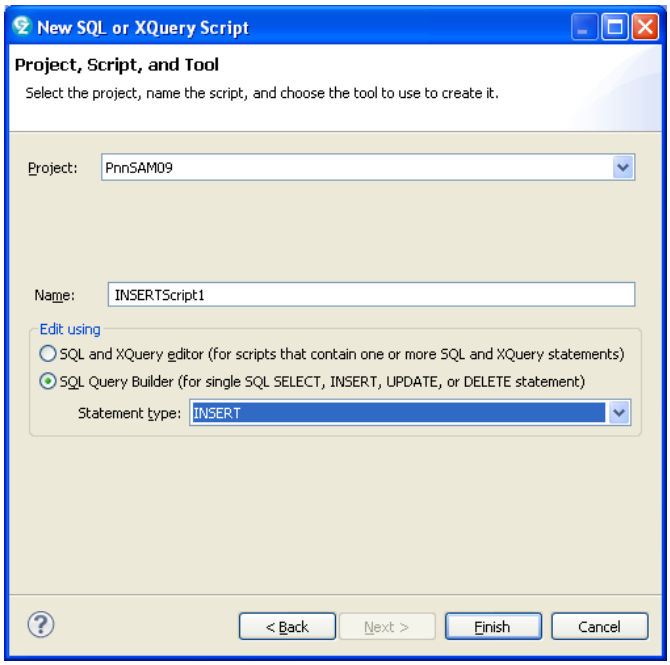


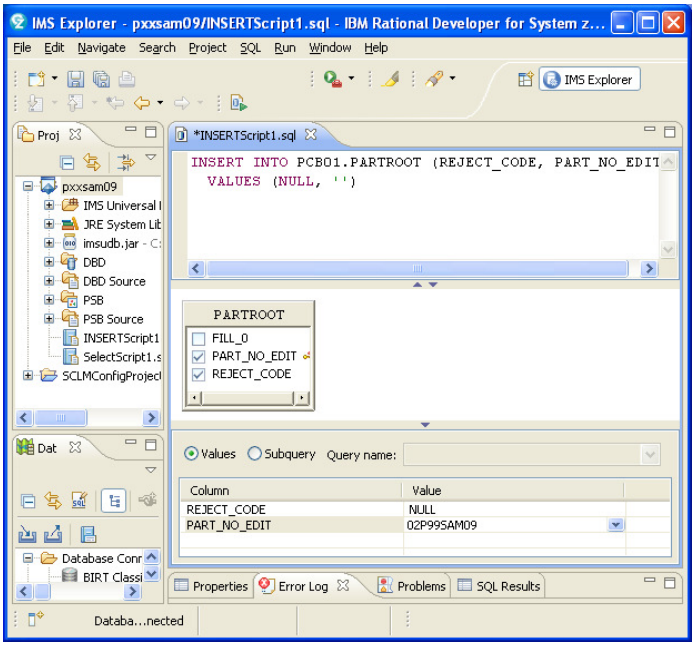
The **SQL to DL/I Call translation** window opens up. Fill in the **Connection profile** with the P**nn**SAM09 value you have been using and a PSB value of **DFSSAM09**. Cut and paste the SQL statement from the SelectScript1.sql window and hit the **Translate** tab.





Take the time now to continue using the same wizard to **INSERT** a new PARTROOT e.g., Use 02P***nn***SAM09 (where ***nn*** is your team number) for the partkey value.

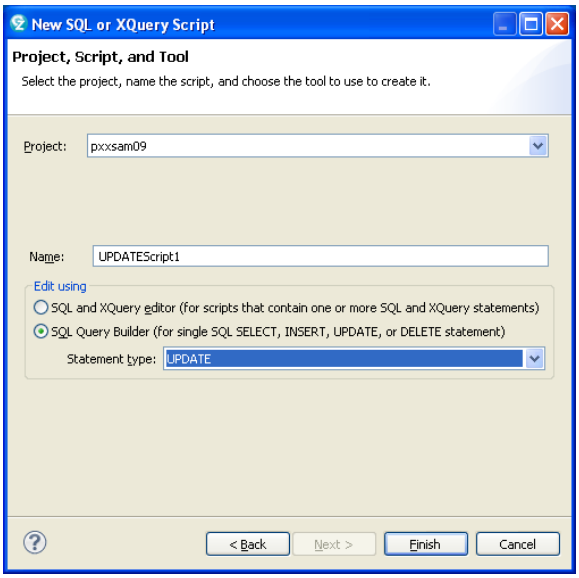




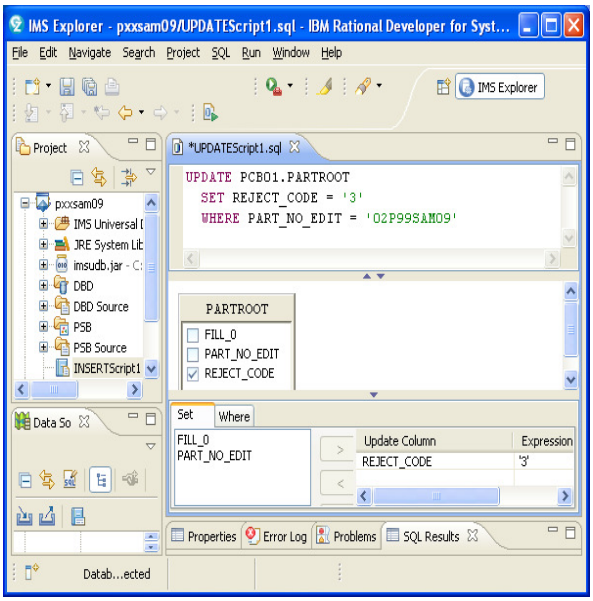
Run the SQL statement when you are done. Check the SQL Results at the

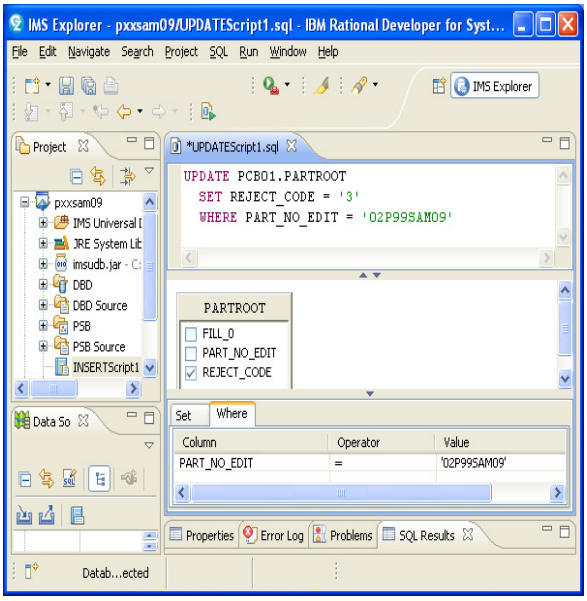
bottom tab to make sure it ran to successful completion.

You can also try an UPDATE.

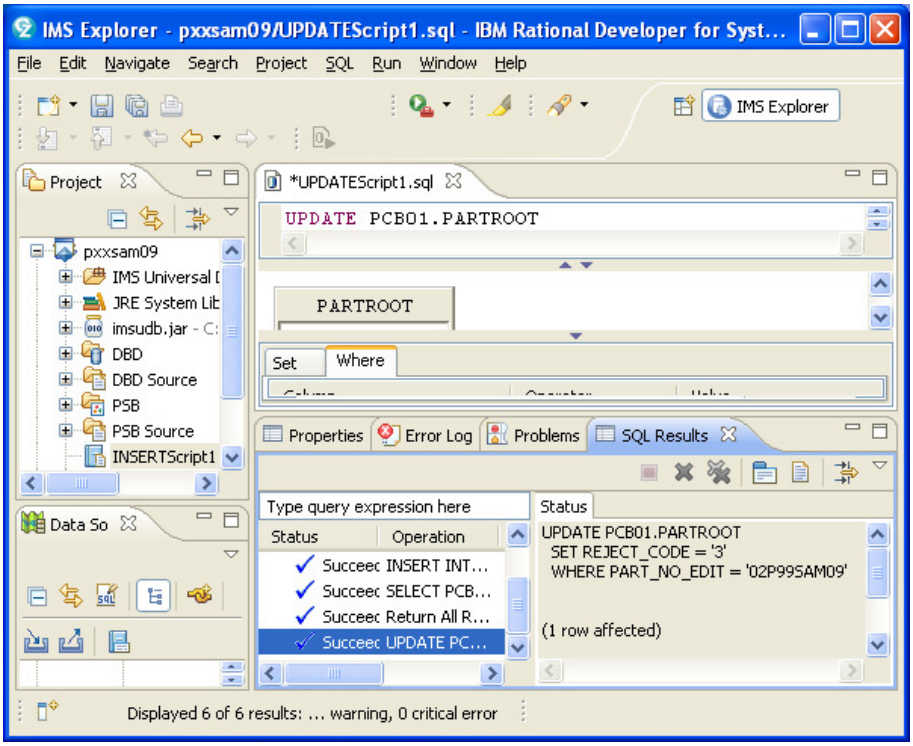


Note for an UPDATE you will need to use the **Set** and **Where** tabs in the box that allows you to choose your tables. For example you can specify a different value for the REJECT_CODE and qualify the call using the partkey PART_NO_EDIT = 02P***nn***SAM09.

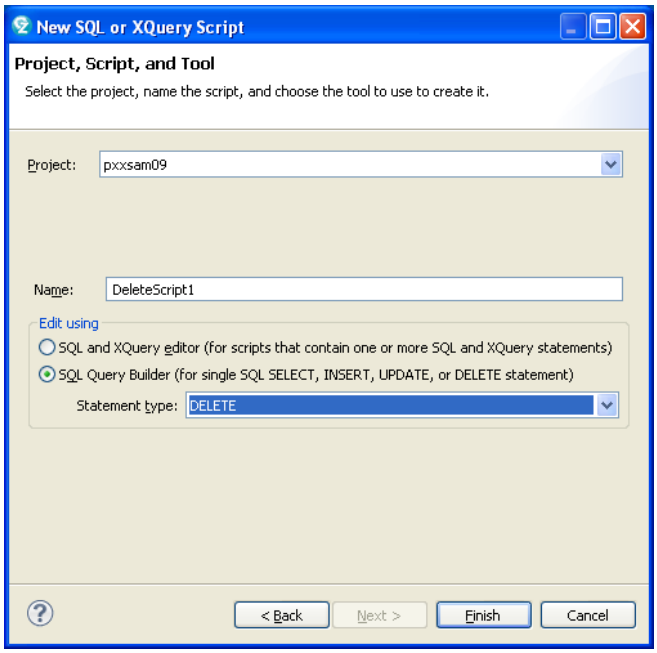


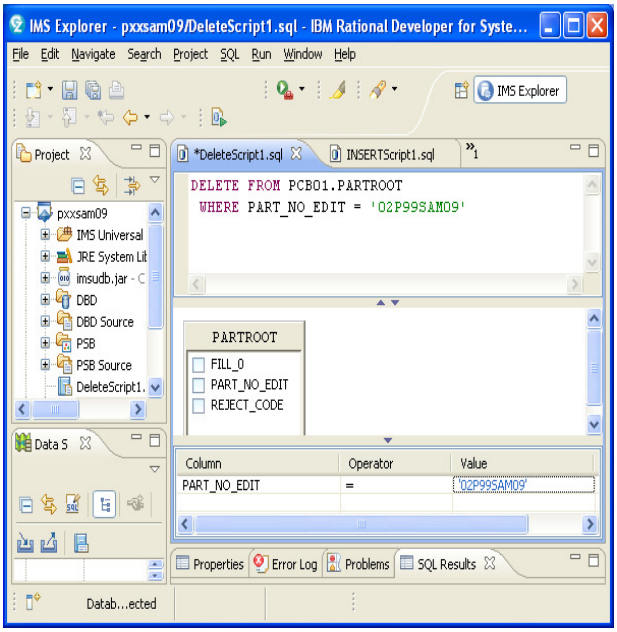


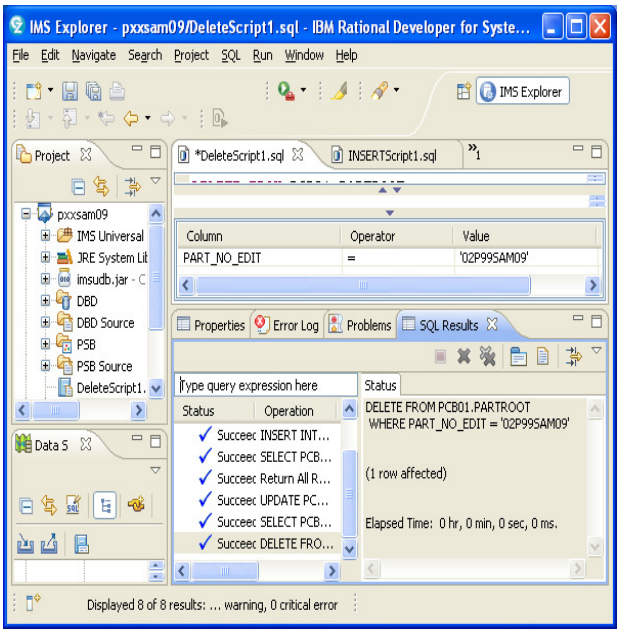
Check the SQL Results tab at the bottom of the window.



Finally, try the DELETE and remove the 02P***nn***SAM09 part that you previously created.


New SQL or XQuery Script
Project, Script, and Tool
Select the project, name the script, and choose the tool to use to create it.
Project:
pxxsam09
Name:
DeleteScript1
Edit using
SQL and XQuery editor (for scripts that contain one or more SQL and XQuery statements)
SQL Query Builder (for single SQL SELECT, INSERT, UPDATE, or DELETE statement)
Statement type:
DELETE
< Back
Next >
Finish
Cancel


IMS Explorer - pxxsam09/DeleteScript1.sql - IBM Rational Developer for Syste...
File Edit Navigate Search Project SQL Run Window Help
IMS Explorer
Project
*DeleteScript1.sql
INSERTScript1.sql
DELETE FROM PCBO1.PARTROOT
WHERE PART_NO_EDIT = '02P99SAM09'
pxxsam09
IMS Universal
JRE System Lit
imsudb.jar - C
DBD
DBD Source
PSB
PSB Source
DeleteScript1.
PARTROOT
FILL_0
PART_NO_EDIT
REJECT_CODE
Data S
Column
Operator
Value
PART_NO_EDIT
=
'02P99SAM09'
Properties
Error Log
Problems
SQL Results
Datab...ected



This completes the lab.