AdHoc Query Designer

Functional Specification

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Version: 1.0.0 (Release)

1. General

1.1 Description and requirements

ING ADHOC QUERY DESIGNER is a generic database SQL Query Builder, reading schema metadata from any available JDBC datasource. This tool is intended to create data views for applications and allow users to design and save sets of queries.

ING ADHOC QUERY DESIGNER server requires a PC with Microsoft Windows Server 2003/2008, or Unix with licenses for connections to appropriate Datasources. Running Apache Tomcat 6.0. This document will detail the implementation using an Oracle 10/11g Database to illustrate the technology.

2. ING ADHOC QUERY DESIGNER Functional Reference

2.1 ING ADHOC QUERY DESIGNER Functionality

ING ADHOC QUERY DESIGNER performs following functions:

- Load metadata from data source creating schema trees.
- Navigate schema trees and drag and drop to business views (for departments Finance, Operations…)
- Manage User Groups and Administration rights
- Manage Groups
- Edit currently selected user Business View tree node.
- Drag and drop and edit data items and filters for query generation.
- Save Queries for individual users.
- Query execution and display in data grid.
- Export to Excel Sheet.

2.2 ING ADHOC QUERY DESIGNER data format

The server will support following data:

- ING ADHOC QUERY DESIGNER uses PL/SQL in this example other SQL dialects can be provided, data is returned in a Rows/Columns ArrayList.

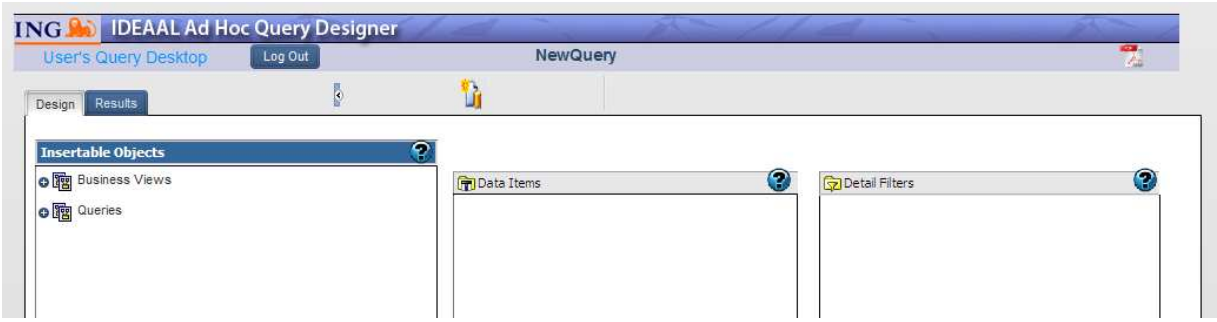
3. Published data

3.1 Query results

Query results are displayed in the dynamic data grid and can be exported to an Excel Worksheet.

4. ING AdHoc Query Designer User Processes

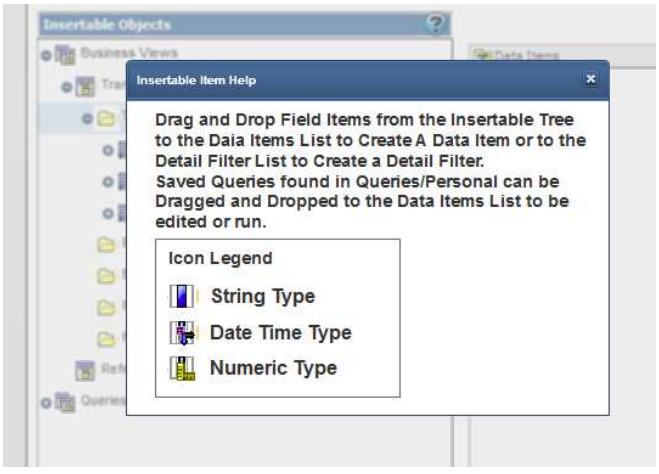
4.1 ING AdHoc Query Designer Main Design View

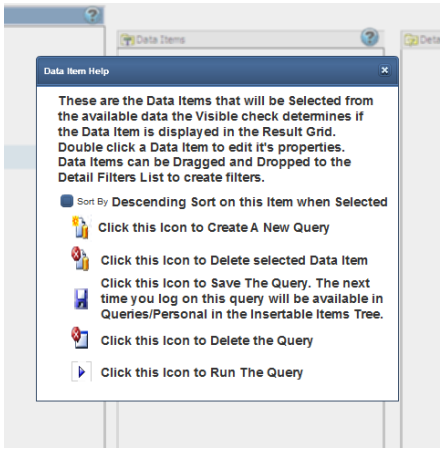


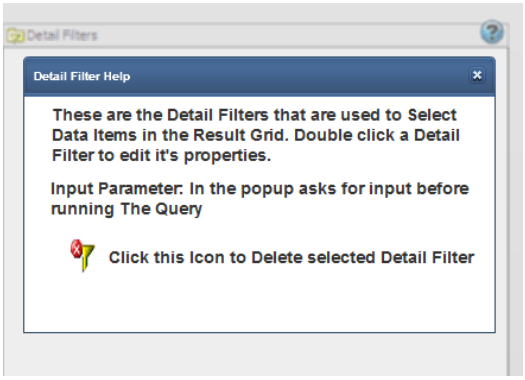
The User Interface has been designed to look like IBM Cognos as this application is meant to be invoked from within the Cognos Portal. It will be passed the User's name and Group from the portal the first time a user logs in a record for them is created with their name and group to map the appropriate Business view to the individual. This view is then loaded into the Insertable Objects tree The ICONS are identical to Cognos to avoid confusion.

4.2 ING AdHoc Query Designer Quick Help

Click the  Icon in the upper right of each List/Tree for quick Help.

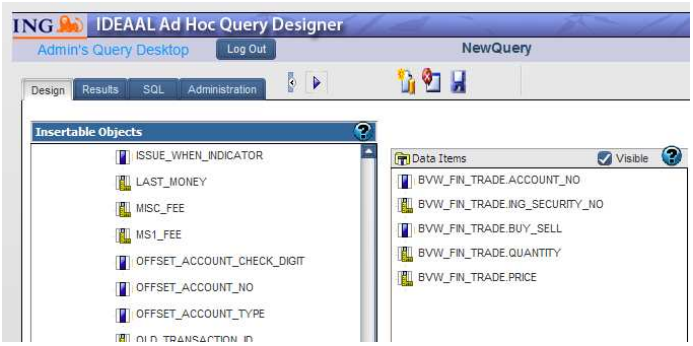






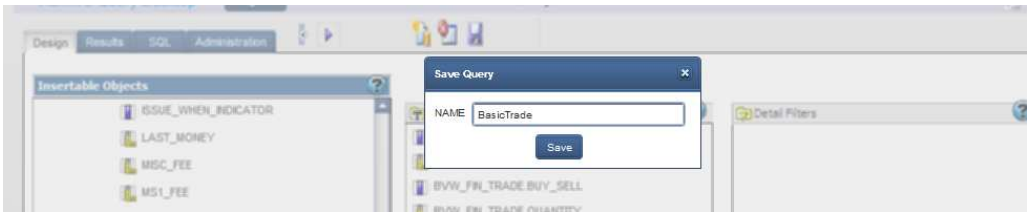
4.3 ING AdHoc Query Designer Creating a Query

Select then Drag and Drop to the Data Items List, Account_NO, BUY_SELL, ING_SECURITY_NO, QUANTITY and PRICE from the BVW_FIN_TRADE Data View. These can be done individually or selected as a group using the CTRL and SHIFT keys. Now Click the Execute Query Button to retrieve the results. Note all controls in AdHoc Query Designer including trees employ a Lazy Load (the data is only retrieved from the server the first time a user clicks on a Node or scrolls to the bottom of the data grid).

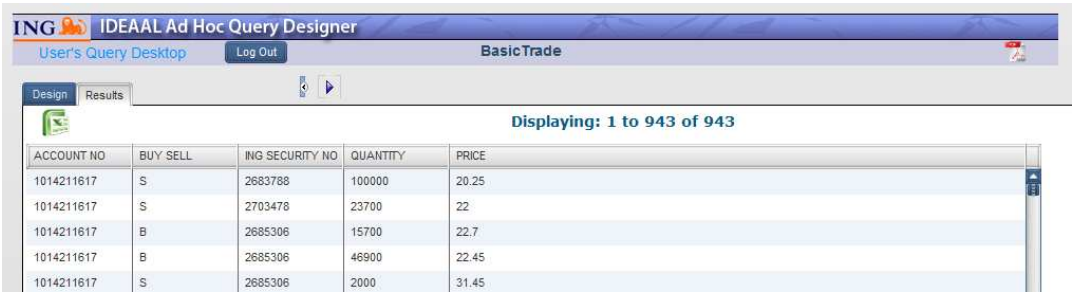


Data Items can be reordered by Dragging and dropping within the Data Items List.

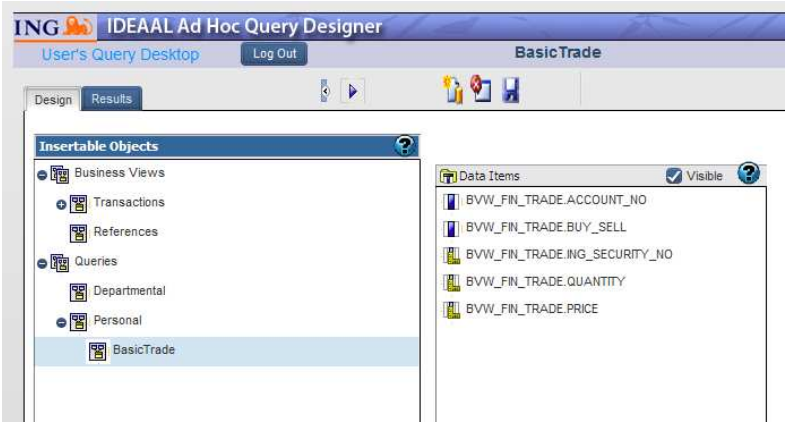
To save the query click the Save Query Button.



Call it BasicTrade click the Save Button, click the Execute Query Button to retrieve the data.

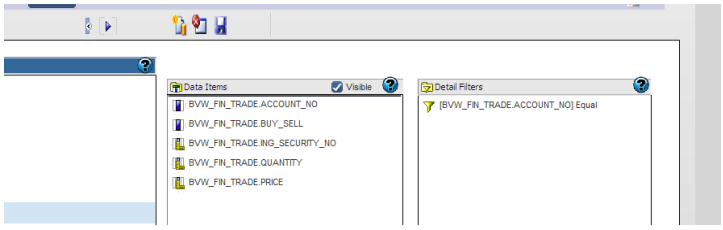


The new query will now appear under the personal queries list and can be dragged and dropped to the Data Items List to be run or modified.

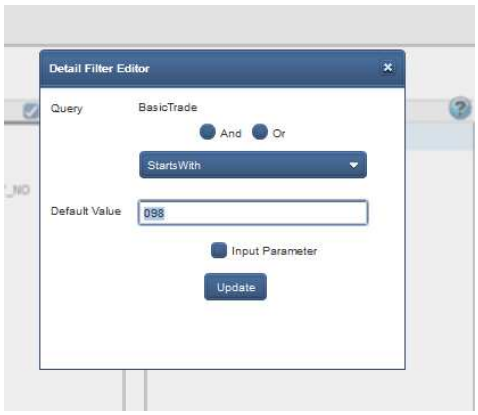


4.4 ING AdHoc Query Designer Filter Editor

Drag and Drop from the Data Items List to the Detail Filters List to create a Filter.



Double Click the Filter to open its Editor.



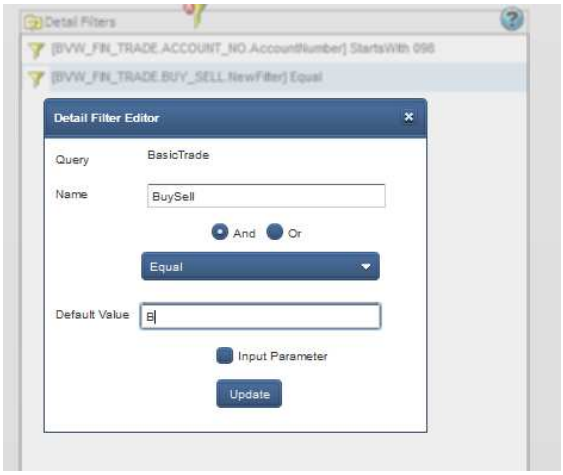
Filters have an and/or (and is assumed unless or is specifically selected) a condition and a default value.

Filters can be one of:

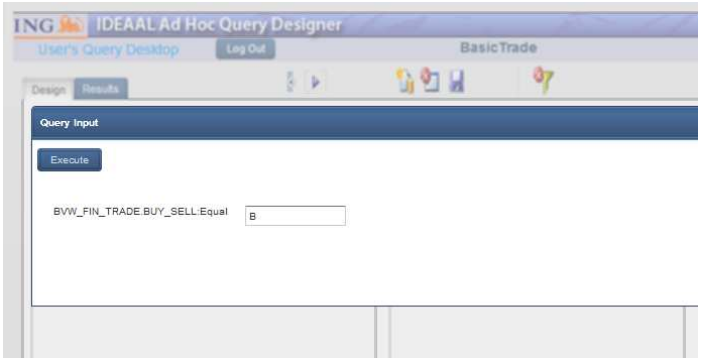
- Between (two values comma separated)
- Contains (value occurs anywhere within the string)
- Multiple (comma separated values %abc starts with abc% ends with %abc% contains abc equals)
- Equal
- Greater Than
- Greater Than/Equal
- Less Than
- Less Than/Equal
- Not Equal
- Starts With (string begins with)
- Ends With (string ends with)

In this case we want all the accounts that start with “098” click the Update Button. Save then run the query.

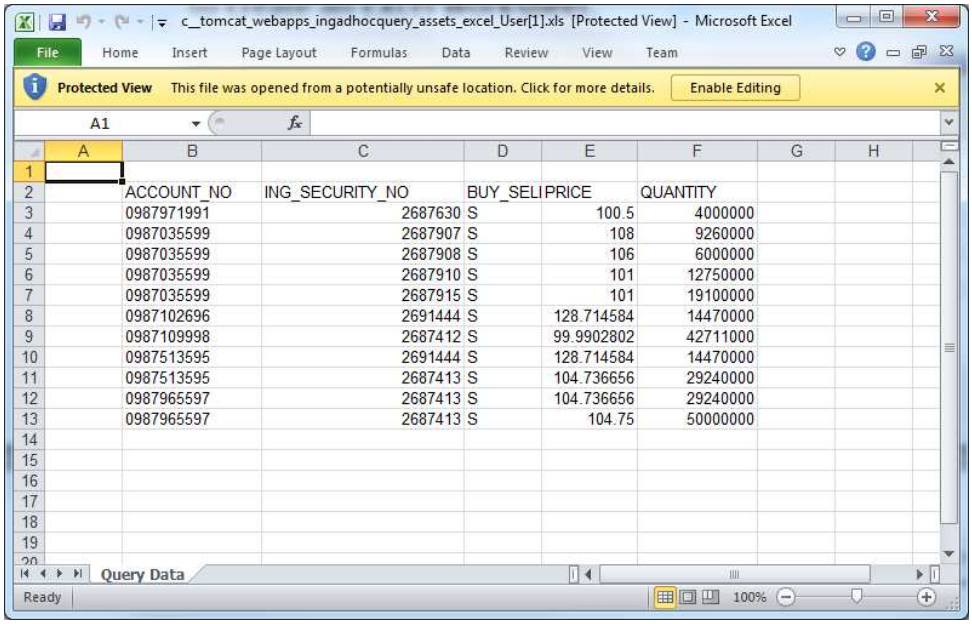
Return to Design Mode and add a BUY_Sell Filter = B click the Update Button. Save then run the query.



Return to Design Mode and modify the BUY_Sell Filter to be an input parameter click the Update Button. Save then run the query.



Now we will be asked for the BUY_SELL value before the query is run. Enter "S" and click on execute. Click the Export to Excel Button to create an Excel Worksheet.



	A	B	C	D	E	F	G	H
1								
2		ACCOUNT_NO	ING_SECURITY_NO	BUY_SELI	PRICE	QUANTITY		
3		0987971991	2687630	S	100.5	4000000		
4		0987035599	2687907	S	108	9260000		
5		0987035599	2687908	S	106	6000000		
6		0987035599	2687910	S	101	12750000		
7		0987035599	2687915	S	101	19100000		
8		0987102696	2691444	S	128.714584	14470000		
9		0987109998	2687412	S	99.9902802	42711000		
10		0987513595	2691444	S	128.714584	14470000		
11		0987513595	2687413	S	104.736656	29240000		
12		0987965597	2687413	S	104.736656	29240000		
13		0987965597	2687413	S	104.75	50000000		
14								
15								
16								
17								
18								
19								

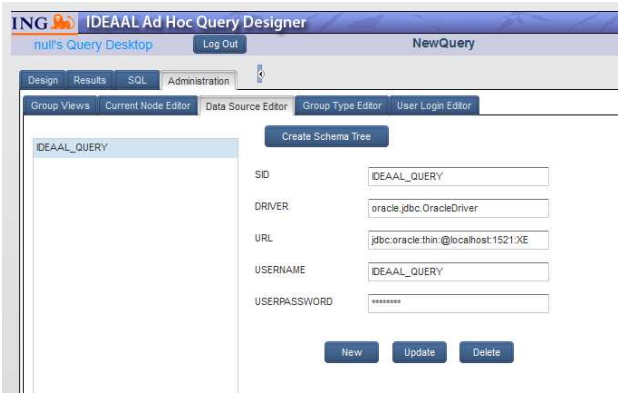
This Worksheet will be sent to Excel on your local machine.

5. ING AdHoc Query Designer Administration

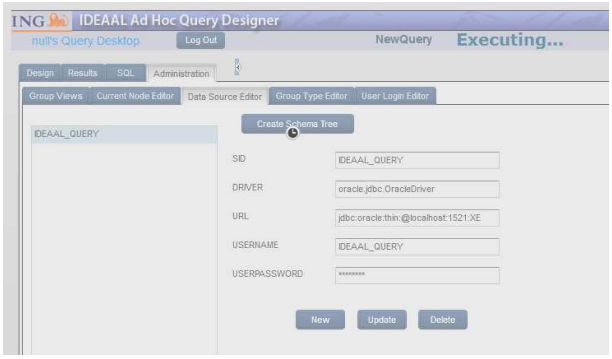
5.1 Data Source Editor

After logging in with Administration privileges open the Administration Tab.

Select the Data Source Editor Tab



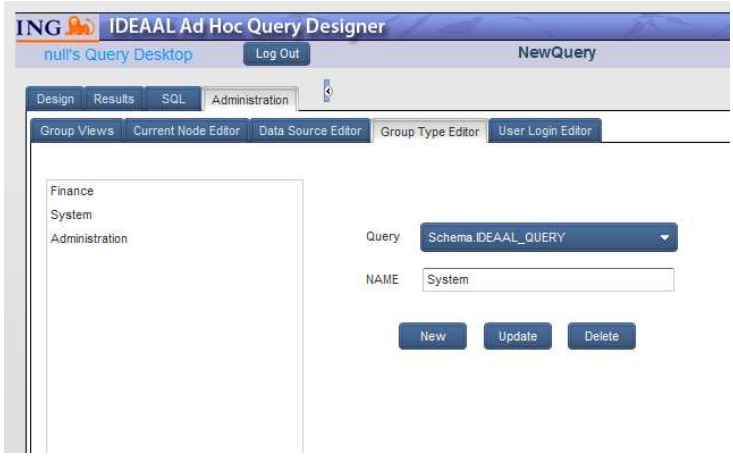
After Entering the JDBC Driver information click the New Button Select the New Data Source and click the Create Schema Tree Button.



This process may take some time depending on the number of objects in the Database Schema. In this case the AdHoc Query Designer Metadata Schema Database also Contains Oracle Synonyms to the accessible tables for user queries. This does not have to be the structure in all cases.

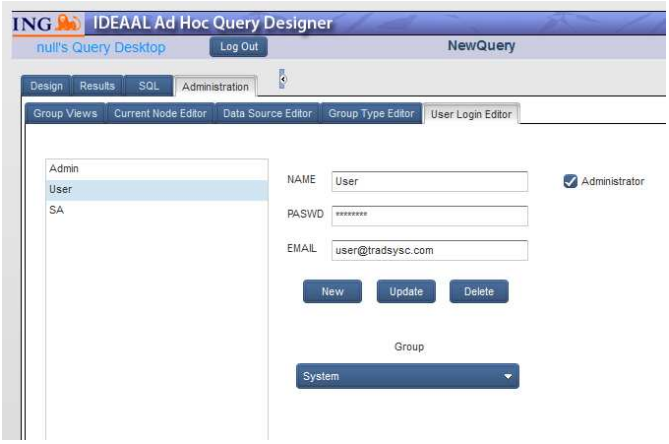
5.2 Group Type Editor

The next step is to create Group types we will create two Administration and Finance



Initially both of these Group Types use the Schema.IDEAAL_QUERY in order to create users.

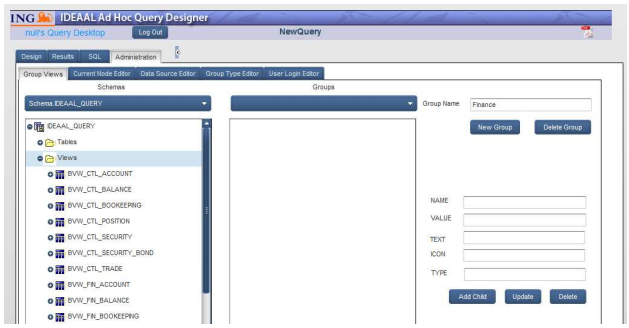
5.3 User Login Editor



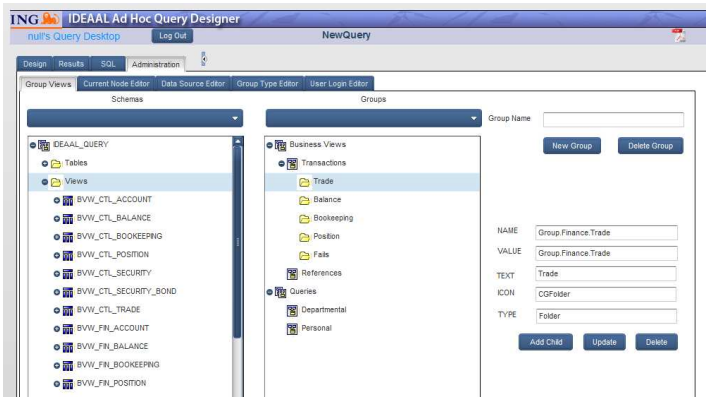
Create two Users: Admin and User Admin has Administrator privileges and both are assigned to the Finance Group. The required key on this table is the Email.

5.4 Group Views Editor

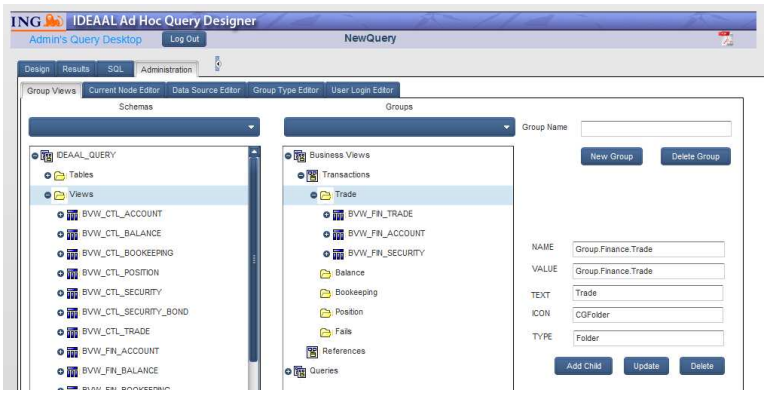
Now create the Business View for Finance. Enter Finance into the Group Name Input Text Box and click the New Group Button.



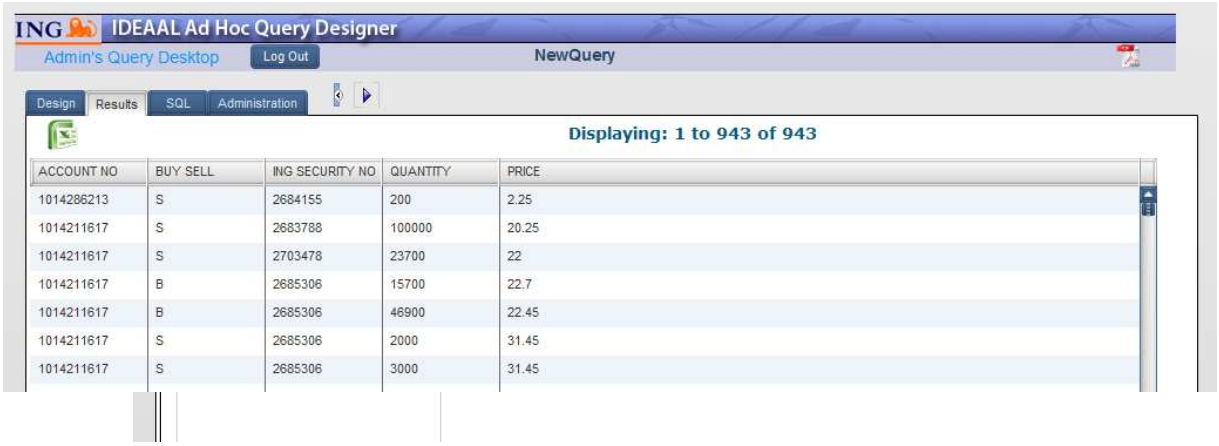
This creates the Business View Basic Structure. We can now Drag and Drop the Data Views from the Schema Tree to the Business View Tree.



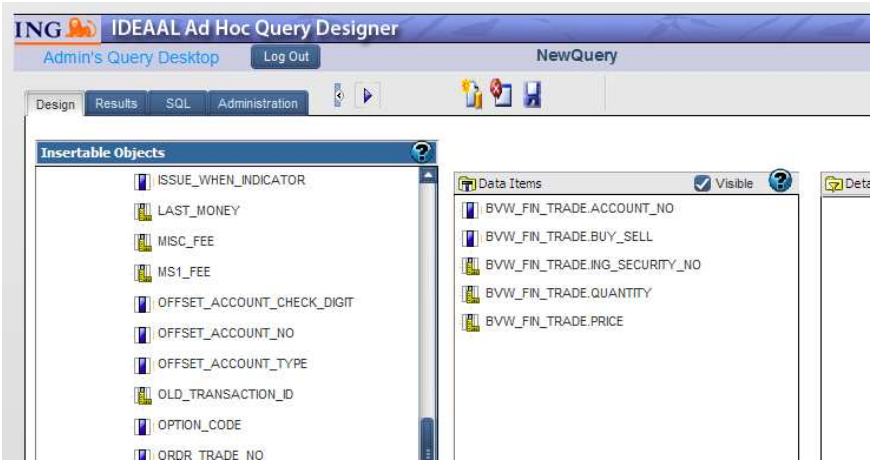
Select the node to add Data Views to in this case we will start with the Trade folder, which will contain BVW_FIN_TRADE, BVW_FIN_ACCOUNT and BVW_FIN_SECURITY.



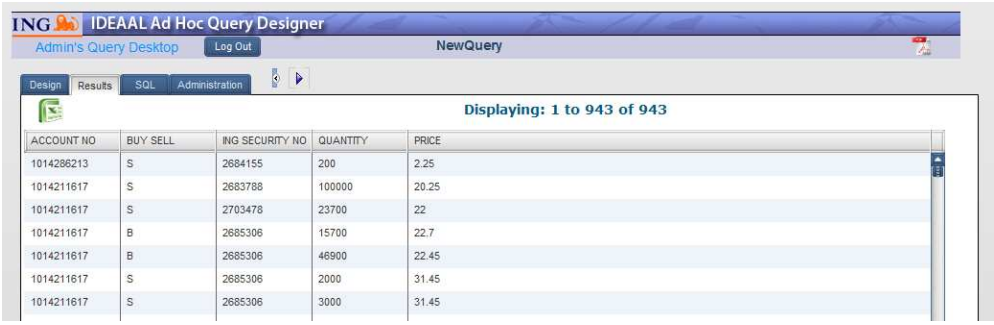
Now open the Group Type Editor and Change the Finance group to use the Group.Finance Query. Click the Update button.



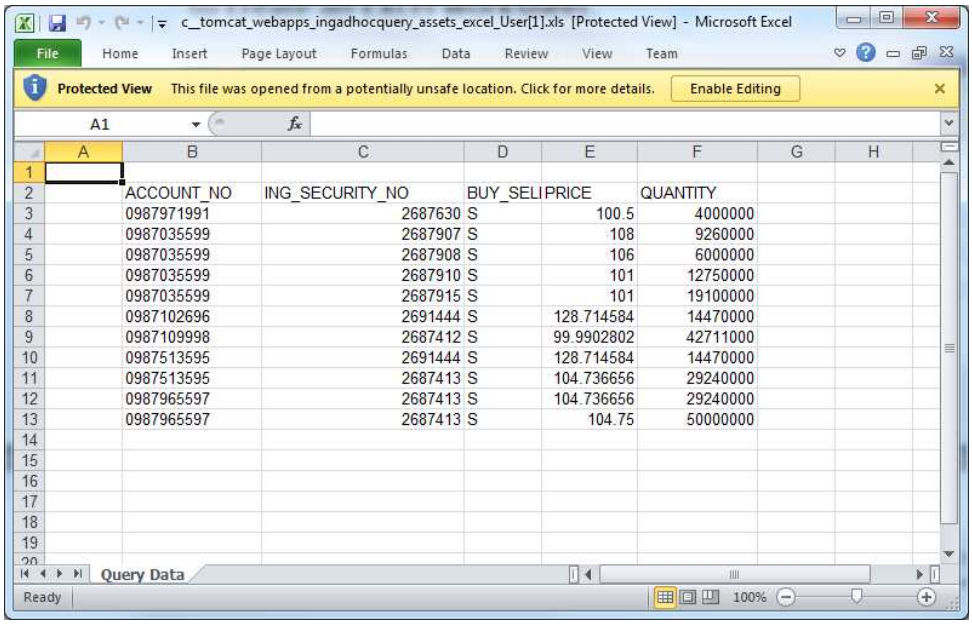
Log Out and Log back in as Admin to test the Business View



Select then Drag and Drop to the Data Items List, Account_NO, BUY_SELL, ING_SECURITY_NO, QUANTITY and PRICE from the BVW_FIN_TRADE Data View. These can be done individually or selected as a group using the CTRL and SHIFT keys. Now Click the Execute Query Button to retrieve the results. Note all controls in AdHoc Query Designer including trees employ a Lazy Load (the data is only retrieved from the server the first time a user clicks on a Node or scrolls to the bottom of the data grid).

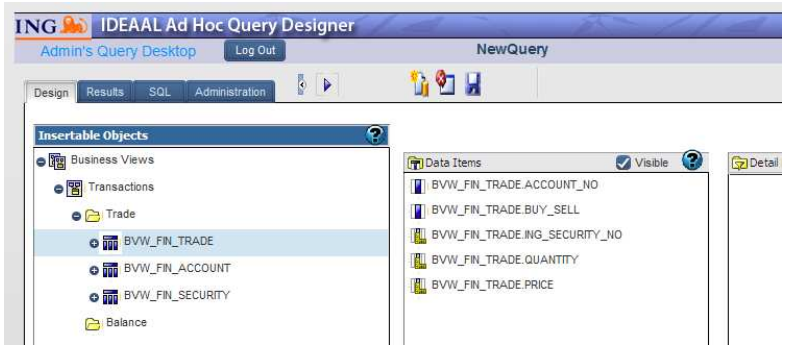


Click on the Export to Excel Button to create an Excel Worksheet from the data grid. Now that we have verified that the system is operational on real data we can complete the Business View.

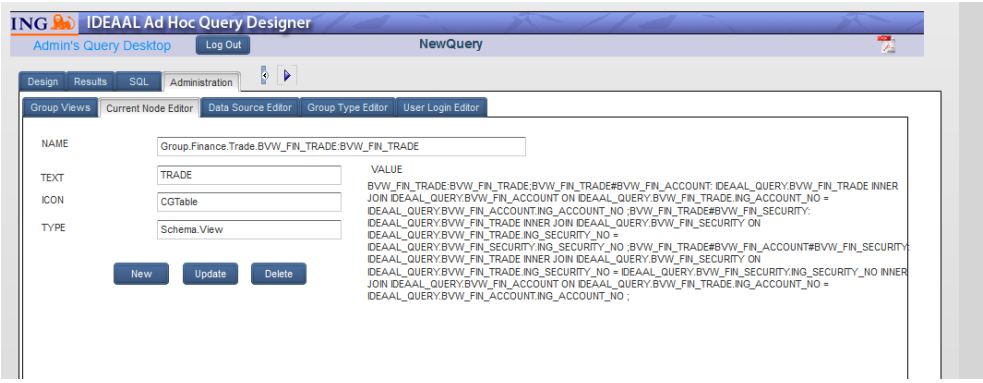


Select the nodes to add Data Views in sequence Balance, which will contain BVW_FIN_BALANCE and BVW_FIN_ACCOUNT, Bookkeeping, which will contain BVW_FIN_BOOKKEEPING, BVW_FIN_ACCOUNT and BVW_FIN_SECURITY, Positions which will contain BVW_FIN_POSITION, BVW_FIN_ACCOUNT and BVW_FIN_SECURITY.

Now we will go back to Design Mode and make all the Data View Names less cryptic for the end users.

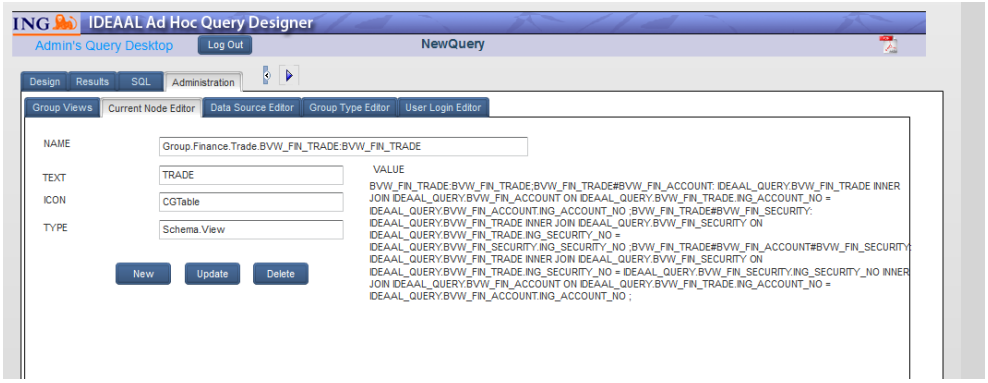


Select each Data View in Design Tab Select the Administration Tab and the Current Node Editor Tab and Edit the TEXT property from BVW_FIN_TRADE to TRADE click the Update Button. Repeat this procedure for all of the Data Views.



5.5 Creating SQL Joins

Each Group will need SQL Join statements in order to Drag and Drop Items from multiple Data Views into a single Query. These have the syntax
DataView1#DataView2:Join Statement; DataView1#DataView3:Join Statement; DataView1#DataView2#DataView3:Join Statement;



The Trades value in the Trade Table would be:
BVW_FIN_TRADE:BVW_FIN_TRADE;BVW_FIN_TRADE#BVW_FIN_ACCOUNT: IDEAAL_QUERY.BVW_FIN_TRADE INNER JOIN IDEAAL_QUERY.BVW_FIN_TRADE ON IDEAAL_QUERY.BVW_FIN_TRADE.ING_ACCOUNT_NO = IDEAAL_QUERY.BVW_FIN_ACCOUNT.ING_ACCOUNT_NO ;BVW_FIN_TRADE#BVW_FIN_SECURITY: IDEAAL_QUERY.BVW_FIN_TRADE INNER JOIN IDEAAL_QUERY.BVW_FIN_SECURITY ON IDEAAL_QUERY.BVW_FIN_TRADE.ING_SECURITY_NO = IDEAAL_QUERY.BVW_FIN_SECURITY.ING_SECURITY_NO ;BVW_FIN_TRADE#BVW_FIN_ACCOUNT#BVW_FIN_SECURITY: IDEAAL_QUERY.BVW_FIN_TRADE INNER JOIN IDEAAL_QUERY.BVW_FIN_SECURITY ON IDEAAL_QUERY.BVW_FIN_TRADE.ING_SECURITY_NO = IDEAAL_QUERY.BVW_FIN_SECURITY.ING_SECURITY_NO INNER JOIN IDEAAL_QUERY.BVW_FIN_ACCOUNT ON IDEAAL_QUERY.BVW_FIN_TRADE.ING_ACCOUNT_NO = IDEAAL_QUERY.BVW_FIN_ACCOUNT.ING_ACCOUNT_NO ;

Follow this same procedure for the other groups. The system is now ready for users.