SCENARIO 5 / Integration of SAP NetWeaver BPM with SAP Business Objects through SAP NetWeaver Business Warehouse

UNIVERSE DESIGNER
QUERY-AS-WEB-SERVICE
XCELSIUS 2008

Radostina Kasova
SAP Technology Solution Management BPM
**Prerequisites**

SAP NetWeaver Composition Environment 7.2 – SAP NetWeaver BPM  
SAP NetWeaver Business Warehouse 7.0  
SAP NetWeaver BI Content 7.04 SP05  
SAP Business Objects XI 3.1  
SAP Business Objects Xcelsius 2008

**Summary**

This document provides step by step guidance on how to implement a simple Xcelsius dashboard with SAP Business Objects Xcelsius 2008, displaying data about the executed business processes on SAP NetWeaver BPM. The connection and extraction of data happens through several systems - SAP NetWeaver BPM, SAP NetWeaver Business Warehouse(using the predefined BPM specific SAP NetWeaver BI Content), SAP Business Objects XI 3.1 – Universe Designer, Query as a Web Service and at last the Web Service is consumed in SAP Business Objects Xcelsius 2008.

**Prerequisite 1 Connect NW BPM with NW BW**  
http://help.sap.com/saphelp_nwce72/helpdata/en/e0/1a5b972e3c4e158ce601c9ec04dc92/frameset.htm

**Prerequisite 2 Extract data to NW BW**  
See also the Documentation of NW BPM BI content  

**Exercise 1 – Create an Universe in SAP Business Objects XI 3.1 – Universe Designer**

1. Open Universe Designer

2. Log on to SAP Business Objects XI Enterprise  
   (please use the credentials to your Enterprise server)

3. Open Tools > Connections
4. You will see the list of all available connections. Click Add to add a New Connection to the SAP NetWeaver Business Warehouse where you will get the OLAP Data.

5. Go Next in the New Connection Wizard.

6. Define a name of the connection and navigate in the list to SAP > SAP Business Warehouse > SAP Client.
7. Enter the connection details to the SAP Business Warehouse System

8. To get the connection details, you need to open SAP Logon and choose SAP Business Warehouse System and then click on Change Item… to view the details of the system you need.
9. On this screen you will see a list of all InfoCubes available, you need to make a search for Aggregated Task Data. If you want to use other BPM InfoCubes, you can search for Aggregated Process Data and Aggregated Log Events Data.

10. Choose Aggregated Task Data($GLX_C02) and click next

11. Go through step 5 and then Finish. With doing this the connection to Aggregated Task Data($GLX_C02) InfoCube on SAP Business Warehouse is created successfully.

12. Go to File > New ... in order to start creating a new Universe
13. Define a name for the universe and choose Q76_Tasks (the connection you defined in step 6)

14. Then all classes and objects of the InfoCube, a little legend of the icons

15. Save the Universe with Universe_Tasks_InfoCube.unv
16. Choose File > Export…

17. Choose the universe and the group of users to which it will be exported. The universe will be exported to the SAP Business Objects XI Enterprise, so that it can be used by other SAP Business Objects products.

18. A message will pop up to inform about the successful export.

Exercise 2 – Create a Query as a Web Service

1. Open Query As A Web Service of SAP Business Objects XI Enterprise.
2. You need to define Host (your CMS server). Choose Add…

3. Add Host name, the URL will be generated. CMS by default is the host name + port 6400.

4. Log on to SAP Business Objects XI Enterprise (please use the credentials to your Enterprise server)

5. Choose Query > New > Query…
6. Define a name of the new Web Service. Choose TasksWS.

7. The default Authorization mode is secEnterprise. It does not need to be changed for this exercise. This means that there will be 2 request parameters for the login and password in the Web Service Definition.

8. Choose the Universe_Tasks_InfoCube that was created in Exercise 1.
9. Choose Dimensions, Dimension Details and Measures from the Universe. The goal is to group the min, max and overall durations by Task Definition. Example: all data for all tasks of type “Approval”, all data for all tasks of tasks of type “Quote”. Number of Instances is needed to calculate later the Average Duration of the tasks.

10. In the last step, a preview of the query result is shown, the max number of preview results is 50 records. If you are happy with the results, publish the Web Service.

11. The new TasksWS is shown in the list of web services and you will be able to get the URL of its WSDL by clicking on To Clipboard. You can paste it and use it later.
12. Optional: To view the WSDL of the Web Service, paste the URL in a browser.

13. Optional: if you experience problem to connect to SAP Business Warehouse from Universe designer, may be the problem is that you don't have installed SAP Log on the PC on which the SAP Business Objects Enterprise is installed. If this happens, you will need to check C:\ WINDOWS\system32\drivers\etc\services file on a system with SAP Logon installed that have a connection to SAP Business Warehouse configured. You need to look for sapdb2q76 20691/tcp # Kannan line and copy it to C:\ WINDOWS\system32\drivers\etc\services file on the PC with SAP Business Objects Enterprise.

Exercise 3 – Create an Xcelsius Dashboard

1. Start Xcelsius 2008 and choose File > New > New

2. Open Data > Connections…

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**Figure 1:** Xcelsius 2008 interface showing the creation of a new dashboard.

**Figure 2:** Highlighted element in the Data Connections menu.

**Figure 3:** WSDL (Web Services Description Language) snippet with details of the Web Service interface.
3. Choose Add. From the dropdown of different types of connections choose Query as a Web Service

4. Paste the URL of the Query as a Web Service from Exercise 2, step 12. Then click Import.

5. You will get the Input and Output Values Displayed. Switch to Usage Tab.

6. Check the option Refresh on Load, so that the Web Service will be called on Load of the dashboard and will load the data.
7. Select the Input Value login and press the small icon with the arrow (as shown). You need to map the Login Name with a cell in the spreadsheet. Login and Password are the credentials for SAP BusinessObjects Enterprise Server.

8. 

9. Select a cell with the Login value

10. The selected cell will be shown in the field Read From, as shown.

11. Select the Input Value password and press the small icon with the arrow (as shown). Select a cell containing the value of the password.

12. Select Row from the Output Values and then the icon marked with arrow. Now you need to select a range of cells where the data will be inserted after the call of the web service.
13. Select a range with 5 columns and the number of expected rows, in this case 4.

14. The selected range of cells will be shown in the field Insert In, as shown. Press Close, in order to finish the configuration of the connection.

15. Type in the following headers in the table, as shown.

16. In cell G2 enter =A2, the goal is to reference the value of the name of task definitions in cell A2

17. Copy the formula to be 3 cells below by drag&drop, as shown

18. In cell H2 enter =B2, the goal is to reference the value of the number of tasks in cell B2

19. Copy the formula to be 3 cells below by drag&drop, as shown

20. In cell I2 enter =C2/3600000, the goal is to reference the value of the min duration in cell C2. The division by 3600000 is needed in order to convert milliseconds into hours.
21. Copy the formula to be 3 cells below by drag&drop, as shown.

22. In cell J2 enter =D2/360000, the goal is to reference the value of the min duration in cell D2. The division by 3600000 is needed in order to convert milliseconds into hours.

23. Copy the formula to be 3 cells below by drag&drop, as shown.

24. In cell K2 enter =E2/B2/3600000. Dividing the total duration by the number of tasks by this task definition will give the average duration in milliseconds. The dividing by 3600000 gives the average duration in hours.

25. Copy the formula to be 3 cells below by drag&drop, as shown.

26. Drag and drop a Spreadsheet Table from the Palette with components to the canvas.

27. As the table is selected, on the right choose the icon marked with arrow to select cells that will be displayed in Display Data.
28. Select the table that we have prepared

![Select a Range](image)

<table>
<thead>
<tr>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

29. The result will be as it is shown

![Spreadsheet](image)

30. Drag and drop a Pie Chart from the Palette with components to the canvas

![Palette](image)

31. Type in Chart title – Tasks per Type. Delete subtitle text. For the values choose Data in Columns option and reference values to Sheet1!$H$2:$H$5 and Labels to Sheet1!$G$2:$G$5

![Pie Chart](image)

Values:  

Labels:  
32. Drag and drop a Column Chart from the Palette with components to the canvas

33. In the properties section of the Column chart, enter Chart title – Task Duration Comparison. Delete subtitle. Enter hours in Value (Y) Axis.

34. Within the Data section select ‘By Series’ click + icon to add a series

35. Type in name Min and select for Values(Y) the column with Min Durations
36. Add a second series Avg and select the Avg column in the table for Values(Y)

37. Add a third series Max and select the Max column in the table for Values(Y)

38. Select the Name column in the table for Category Labels(X)

39. The result on the canvas shall look like as shown

40. Save the file with the name tasks_dashboard.xlf.
41. Export the file in Flash SWF format if you want to embed it later in a web page.

42. While developing the dashboard, you can use Preview in order to check the progress.

43. The current result is as follows: