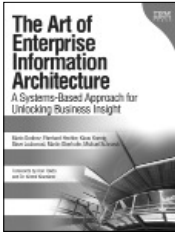# IBM Cognos 10 Report Studio

Practical Examples

Filip Draskovic
Roger Johnson

Related Books of Interest

The Art of Enterprise Information Architecture
**A Systems-Based Approach for Unlocking Business Insight**

By Mario Godinez, Eberhard Hechler, Klaus Koenig, Steve Lockwood, Martin Oberhofer, and Michael Schroeck

ISBN: 0-13-703571-3

Architecture for the Intelligent Enterprise: Powerful New Ways to Maximize the Real-Time Value of Information

In this book, a team of IBM's leading information management experts guide you on a journey that will take you from where you are today toward becoming an "Intelligent Enterprise."

Drawing on their extensive experience working with enterprise clients, the authors present a new, information-centric approach to architecture and powerful new models that will benefit any organization. Using these strategies and models, companies can systematically unlock the business value of information by delivering actionable, real-time information in context to enable better decision-making throughout the enterprise—from the "shop floor" to the "top floor."
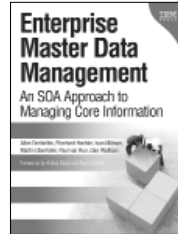
Enterprise Master Data Management
An SOA Approach to Managing Core Information

By Allen Dreibelbis, Eberhard Hechler, Ivan Milman, Martin Oberhofer, Paul Van Run, and Dan Wolfson

ISBN: 0-13-236625-8

The Only Complete Technical Primer for MDM Planners, Architects, and Implementers

Enterprise Master Data Management provides an authoritative, vendor-independent MDM technical reference for practitioners: architects, technical analysts, consultants, solution designers, and senior IT decision makers. Written by the IBM® data management innovators who are pioneering MDM, this book systematically introduces MDM's key concepts and technical themes, explains its business case, and illuminates how it interrelates with and enables SOA.

Drawing on their experience with cutting-edge projects, the authors introduce MDM patterns, blueprints, solutions, and best practices published nowhere else—everything you need to establish a consistent, manageable set of master data, and use it for competitive advantage.

Listen to the author's podcast at:
ibmpressbooks.com/podcasts

Step 2: Set Up the Returns by Product Query

The report will start with a query that works with the three regular dimensions: Time, Products, and Return Reason. After the dimensions are built, the measure is added to the query.

1. In the **Explorer Bar**, mouse over the **Query Explorer** tab and select the **Queries** folder.

2. Rename **Query1** to **Product_Returns_by_Product**.

3. In the work area, double-click the query to open the query definition.

4. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Data Item** object into the **Data Items** pane of the work area.

    The Data Item Expression dialog box is displayed.

5. In the **Available Components** pane, expand the **Time** dimension within the **Returned items** namespace.

6. Drag the **Time** hierarchy from the **Available Components** pane into the **Expression Definition** pane.

7. In the **Expression Definition** pane, add **->?Selected Time?** after the hierarchy.

    The Expression should be this:

    ```
    [Returned items].[Time].[Time]->?Selected Time?
    ```

8. Click **Validate** and then **OK** if there are no errors.

9. In the **Properties** pane, change the **Name** property to **Time** and change the **Aggregate Function** property to **None**.

10. In the **Toolbox** tab of the **Available Components** pane, drag a **Data Item** object into the **Data Items** pane.

    The Data Item Expression dialog box is displayed.

11. In the **Expression Definition** pane, type the following function:

    ```
    descendants ( [Time], 1 )
    ```

    This function shows all the members that are one level below the select Time dimension member.

12. Click **Validate** and **OK** if the validation returned no errors.

13. In the **Properties** pane, change the **Name** property to **Time Group**, and change the **Aggregate Function** property to **None**.

    With the time periods selected, you will add the product details below the selected product information.

14. In the **Toolbox** tab of the **Available Components** pane, drag a **Data Item** object into the **Data Items** pane.

    The Data Item Expression dialog box is displayed.

15. In the **Available Components** pane, expand the **Products** dimension.

16. Drag the **Products** hierarchy from the **Available Components** pane into the **Expression Definition** pane.

COGNOS 8 NOTE   The **Products** dimension and hierarchy are called **Product**.

---

17. In the **Expression Definition** pane, add **->?Selected Product?** after the hierarchy.

    The Expression should be this:

    ```
    [Returned items].[Products].[Products]->?Selected Product?
    ```

18. Click **Validate** and then **OK** if there are no errors.

19. In the **Properties** pane, change the **Name** property to **Product** and change the **Aggregate Function** property to **None**.

    Now we will show all the product information below the selected item, as well as the selected item.

20. In the **Toolbox** tab of the **Available Components** pane, drag a **Data Item** object into the **Data Items** pane.

    The Data Item Expression dialog box is displayed.

21. In the **Expression Definition** pane, type the following function:

    ```
    descendants ( [Product], 1, self after )
    ```

22. Click **Validate** and **OK** if the validation returned no errors.

23. In the **Properties** pane, change the **Name** property to **Product Details** and change the **Aggregate Function** property to **None**.

24. In the **Source** tab of the **Insertable Objects** pane, expand the **Return reason** dimension and the **Return reason** hierarchy.

25. Drag the **Reason description** level into the **Data Items** pane in the work area.

COGNOS 8 NOTE   The **Reason description** level is named **Return reason** in IBM Cognos 8 BI.

If you click on the **Return reason** data item, you will see in the properties that you created a level set that displays all Return reason members.

26. In the **Source** tab of the **Insertable Objects** pane, expand the **Returned items** measure dimension.

27. Drag **Return quantity** into the **Data Items** pane.

28. From the **Run** menu, select **View Tabular Data** to test your query. When prompted, expand **Products** and select **Camping Equipment**. Also, select **Time** and click **OK**.

COGNOS 8 NOTE   The **Products** member is **Products (all)**, and the **Time** member is **Time dimension (all)** in IBM Cognos 8 BI.

The results of the query should resemble what's shown in Figure 2.21.

29. Close **IBM Cognos Viewer** to return to your report design.

Time	Time Group	Product	Product Details	Reason description	Return quantity
Time	2004	Camping Equipment	Lanterns	Wrong product shipped	4,133
Time	2004	Camping Equipment	Lanterns	Defective product	1,667
Time	2004	Camping Equipment	Lanterns	Unsatisfactory product	896
Time	2004	Camping Equipment	Lanterns	Wrong product ordered	4,204
Time	2004	Camping Equipment	Lanterns	Incomplete product	1,397
Time	2004	Camping Equipment	Flicker Lantern	Wrong product shipped	380
Time	2004	Camping Equipment	Flicker Lantern	Defective product	58
Time	2004	Camping Equipment	Flicker Lantern	Unsatisfactory product	137
Time	2004	Camping Equipment	Flicker Lantern	Wrong product ordered	254
Time	2004	Camping Equipment	Flicker Lantern	Incomplete product	107
Time	2004	Camping Equipment	Flicker Lantern 41110	Wrong product shipped	380
Time	2004	Camping Equipment	Flicker Lantern 41110	Defective product	58
Time	2004	Camping Equipment	Flicker Lantern 41110	Unsatisfactory product	137
Time	2004	Camping Equipment	Flicker Lantern 41110	Wrong product ordered	254
Time	2004	Camping Equipment	Flicker Lantern 41110	Incomplete product	107
Time	2004	Camping Equipment	EverGlow Double	Wrong product shipped	
Time	2004	Camping Equipment	EverGlow Double	Defective product	
Time	2004	Camping Equipment	EverGlow Double	Unsatisfactory product	8
Time	2004	Camping Equipment	EverGlow Double	Wrong product ordered	102
Time	2004	Camping Equipment	EverGlow Double	Incomplete product	

Figure 2.21   Product_Returns_by_Product query results

Step 3: Build the Crosstab Report

1. In the **Explorer Bar**, mouse over the **Page Explorer** tab and select **Page1**.

2. From the **Data Items** tab of the **Insertable Objects** pane, drag **Time Group** into the **Columns** area in the crosstab.

3. Drag **Return quantity** into the **Measures** area of the crosstab.

4. Drag **Product** into the **Rows** area of the crosstab.

5. Drag **Product Details** into the **Rows** area below **Product**.

This is known as making **Product Details** a peer of **Product**. This will list the product you selected in the row first followed by all the child members.

6. In the work area, click **Product Details** in the rows to select it.

7. In the **Properties** pane, double-click the **Level Indentation** property.

A dialog box is displayed.

8. Change the **Indentation type** property to **Based on the level in the hierarchy**.

9. Click **OK** to close the dialog box.

Since **Product** and **Product Details** are treated as separate sets, we will need to nest **Return reason** under both sets.

10. From the **Data Items** tab of the **Insertable Object** pane, drag **Reason description** to the right of **Product** in the rows.

This is known as nesting the **Return** description within **Product**.

11. Drag **Reason description** to the right of **Product Details** in the rows.

The crosstab should look like Figure 2.22.

Figure 2.22 Initial crosstab design

12. From the **Run** menu, select **Run Report – HTML** to test your report. If prompted, expand **Products** and select **Camping Equipment**. Also, expand **Time** and select **2005**. The report output should have values similar to those shown in Figure 2.23.

Return quantity		Unspecified 2005	Q1 2005	Q2 2005	Q3 2005	Q4 2005
Camping Equipment	Unsatisfactory product		6,318	2,134	4,339	6,291
	Defective product		1,719	1,294	2,257	1,989
	Wrong product shipped		4,131	2,208	3,674	3,044
	Incomplete product		3,468	3,676	1,833	2,394
	Wrong product ordered		2,835	1,914	4,491	6,247
Cooking Gear	Unsatisfactory product		4,713	398	1,403	3,367
	Defective product		593	173	521	1,180
	Wrong product shipped		904	1,460	2,373	1,817
	Incomplete product		2,193	2,044	769	1,318
	Wrong product ordered			135		1,806
TrailChef Water Bag	Unsatisfactory product		1,462			2,661
	Defective product					
	Wrong product shipped					
	Incomplete product					
	Wrong product ordered					
TrailChef Water Bag 1110	Unsatisfactory product		1,462			2,661
	Defective product					
	Wrong product shipped					
	Incomplete product					
	Wrong product ordered					

Figure 2.23   Initial report results

Notice that the return descriptions are all listed in the same order. To improve the value of the report, the Return descriptions should be sorted for each row and the selected time period.

13. Close **IBM Cognos Viewer** to return to your report design.

Step 4: Refine the Sorting on the Row Data

In the preceding query, we created three group sets that work independently of one another. Now you want to arrange the Return reasons in descending order based on the product information in the row and the selected time period. To do this, we will define the set sorting to be a tuple (intersection) of the return reason, selected time, and quantity returned.

1. In the **Explorer Bar**, mouse over the **Query Explorer** tab and select **Product_Returns_by_Product**.

A tuple represents the intersection of members, so the **Time** set in the query needs to be cast as a member before the set can be sorted by the selected time period.

2. From the **Toolbox** tab of the **Insertable Objects** pane, drag a **Query Calculation** object into the **Data Items** pane of the work area.

A dialog box is displayed.

COGNOS 8 NOTE In the prior version, IBM Cognos Report Studio has a Toolbox object called **Calculated Member**, which would reduce the number of steps required to create the **Selected Time** data item. In this case, drag a **Calculated Member** object into the **Data Items** pane. Skip the next step and continue with step 4.

---

3. Verify that the **Calculated member** radio button is selected.

4. In the **Name** field, type **Selected Time**.

5. In the **Hierarchy** drop-down list, select the **Time** hierarchy from the **Returned Items** namespace.

6. Click **OK** and the Calculated Member Expression dialog box is displayed.

7. In the **Expression Definition** pane, type the following function:

```
item ( [Time], 0 )
```

This function returns the first member of a set. Since **Time** is selected as a single item, there will be only one item in the set.

8. Click **Validate** and **OK** if the validation returned no errors. If prompted, expand **Products** and select **Camping Equipment**. Also, expand **Time** and select **2005**.

9. In the work area, click **Reason description** to select it.

10. In the **Properties** pane, double-click the **Set Sorting** property to open the dialog box.

11. In the Set Sorting dialog box, change the **Sort type** to **Descending**.

12. In the **Sort by** section, select the **Intersection (tuple)** radio button and click the ellipsis for the selection.

The Members dialog box is displayed.

We will select the newly created **Selected Time** member and **Returned items** measure for the intersection values.

13. From the **Available members and measures** pane, expand **Sales and Marketing (analysis)** and **Returned Items** namespaces.

14. Drag **Return quantity** from the **Returned items** measure dimension to the **Intersection members and measures** pane.

15. From the **Calculated members and measures** tab in the **Available members and measures** pane, drag **Selected Time** to the pane on the right.