



IBM Cognos Forum

Ignite knowledge, ideas, connections

Recap of Model Advisor in IBM Cognos 8.3+ Framework Manager

Michael Taylor

Practice Area Lead – Business Intelligence

IBM Cognos Software Group Services

August 2009

Information Management

Cognos.
software

Agenda

- > Overview of Model Advisor – assumes good understanding of the common pitfalls of modeling
- > Walkthrough applying Model Advisor to common challenges
- > Demo
- > Additional resources

Model Advisor Overview

> Framework Manager Tool

- Introduced in IBM Cognos 8 BI v3
- Based on documented modeling guidelines
- Identifies common modeling pitfalls
- Provides links to documentation
- Intended for Relational based models only

Who should use Model Advisor?

- > Model Advisor can be both:
 - An assistive tool for new modelers
 - A diagnostic tool for experienced modelers – can be tedious if manual
 - **Not a replacement for a knowledgeable modeler!**

- > Designed to demystify modeling and introduce consistency
 - Using documented modeling guidelines
 - Automates detection of common issues

- > **Not everything detected needs to be resolved! Areas for attention!**
 - Depends on data and end-user requirements
 - Recommend downloading the Case Study from Proven Practices

Launch the Model Advisor

The screenshot displays the IBM Cognos interface with a context menu open over the 'TIME_QU' object in the 'Database view' tree. The menu includes options like 'New Parent', 'Test', 'Verify Selected Objects...', and 'Run Model Advisor...'. The 'Run Model Advisor...' option is highlighted. The background shows the 'Project Viewer' pane with a tree view of the 'go_sales' project, including objects like 'Inventory (analysis)', 'Product forecast (analysis)', and 'Database view'.

Database view

- gosales
 - BRANCH
 - COUNTRY
 - Country lookups
 - INVENTORY_LEVELS
 - ORDER_METHOD
 - PRODUCT_FORECAST
 - RETURNED_ITEM
 - RETURNED_ITEM
 - SALES_R
 - SALES_T
 - TIME_DIM
 - TIME_QU
 - Product query
 - Order query
 - Model query
 - Sales target (analysis)
 - Sales target (query)
 - Returned items (analysis)
 - Returned items (query)
 - Sales (analysis)
 - Sales (query)
 - Order (analysis)
 - Order (query)
 - Time dimension (analysis)
 - Time dimension (query)
 - Product forecast (analysis)
 - Product forecast (query)
 - Order (analysis)
 - Order (query)
 - Product (analysis)
 - Product (query)

Project Viewer

- go_sales
 - Inventory (analysis)
 - Product forecast (analysis)
 - Returned items (analysis)
 - Sales (analysis)
 - Sales target (analysis)
 - Inventory (query)
 - Product forecast (query)
 - Returned items (query)
 - Sales (query)
 - Sales target (query)
 - Database view
 - gosales
 - BRANCH
 - COUNTRY
 - Country lookups
 - INVENTORY_LEVELS
 - ORDER_METHOD
 - PRODUCT_FORECAST
 - RETURNED_ITEM
 - RETURN_REASON

Context Menu

- New Parent
- Test
- Verify Selected Objects...
- Run Model Advisor...**
- Show Object Dependencies...
- Merge in New Query Subject
- Merge in New Regular Dimension
- Create Star Schema Grouping...
- Cut (Ctrl+X)
- Copy (Ctrl+C)
- Paste (Ctrl+V)
- Delete (Del)
- Create Alias Shortcut
- Create Shortcut
- Rename
- Select All Similar Objects
- Launch Context Explorer

Tools Menu

- Test
- Verify Selected Objects...
- Run Model Advisor...**
- Show Object Dependencies...
- Create Star Schema Grouping...
- Detect Relationships...
- Determine Aggregation Rules
- Determine Usage
- Evaluate Object
- Find Report Dependencies
- Find All Secured Objects
- Model Report...

Run the Model Advisor

2008-5-6 17:57:45 [Save](#) [Print](#)

Issue 1: Facts identified by cardinality

This query subject is identified as a fact because of the cardinality of its relationships. It is recommended that you review the implications of this to SQL generation and, if appropriate, change the usage of this query subject or its relationships. [More information about cardinality...](#)

Object Name	Problem Description	Action
RETURNED_ITEM	The query subject RETURNED_ITEM is on the many side of all its referencing relationships.	
SALES_TARGET	The query subject SALES_TARGET is on the many side of all its referencing relationships.	
CONVERSION_RATE	The query subject CONVERSION_RATE is on the many side of all its referencing relationships.	
CURRENCY_LOOKUP	The query subject CURRENCY_LOOKUP is on the many side of all its referencing relationships.	
EURO_CONVERSION	The query subject EURO_CONVERSION is on the many side of all its referencing relationships.	
INVENTORY_LEVELS	The query subject INVENTORY_LEVELS is on the many side of all its referencing relationships.	
PRODUCT_FORECAST	The query subject PRODUCT_FORECAST is on	

[Analyze](#) [Close](#) [Help](#)

Example: Model Advisor Feedback

Issue 1: Facts identified by cardinality

This query subject is identified as a fact because of the cardinality of its relationships. It is recommended that you review the implications of this to SQL generation and, if appropriate, change the usage of this query subject or its relationships. [More information about cardinality...](#)

Object Name	Problem Description	Action
INVENTORY_LEVELS	The query subject INVENTORY_LEVELS is on the many side of all its referencing relationships.	
PRODUCT_FORECAST	The query subject PRODUCT_FORECAST is on the many side of all its referencing relationships.	
RETURNED_ITEM	The query subject RETURNED_ITEM is on the many side of all its referencing relationships.	

[Save](#) [Print](#)

Framework Manager User Guide

Cardinality in Generated Queries

Framework Manager supports both minimum-maximum cardinality and optional cardinality.

In 0:1, 0 is the minimum cardinality, 1 is the maximum cardinality.

In 1:n, 1 is the minimum cardinality, n is the maximum cardinality.

A relationship with cardinality specified as 1:1 to 1:n is commonly referred to as a one-to-many relationship.

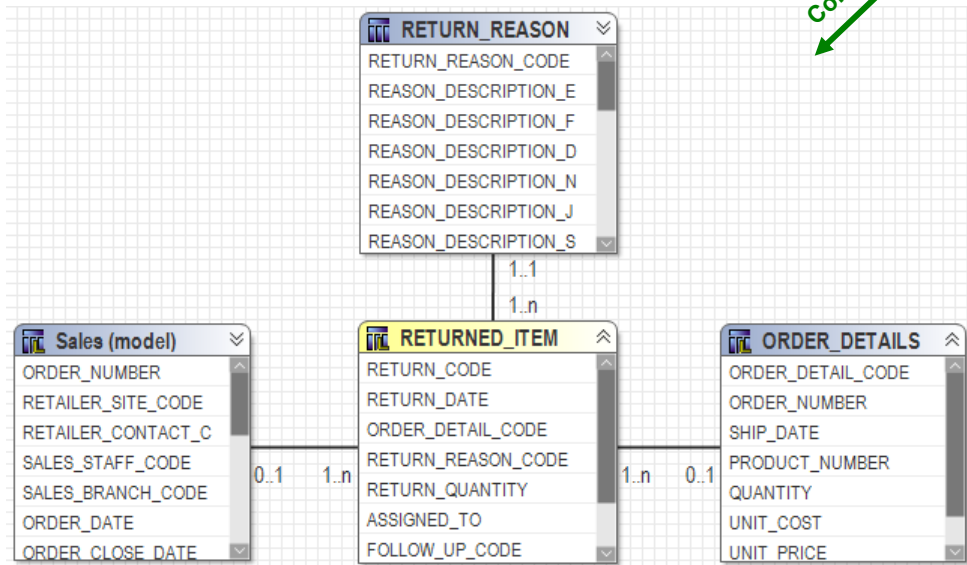
A minimum cardinality of 0 indicates that the relationship is optional. You may want to retain the information on the other side of the relationship in the query to retain the information on the other side of the relationship in the query. This customer information even though there may not be any sales data present.

Therefore a 1 to n relationship can also be specified as 0:1 to 0:n, 0:1 to 0:n.

Use the **Relationship impact** statement in the **Relationship Definition** pane. For example, Sales Staff (1:1) is joined to Orders (0:n).

Relationship impact: Each Order has one and only one Sales Staff.
Each Sales Staff has zero or more Order (outer join).

Context Explorer



Model Advisor Workflow – Follow a Process

> New models

- Analyse newly-imported objects first (your model foundation)
- Use feedback to resolve potential problems
- Use the model advisor **iteratively**

> Existing models

- Diagnose issues with reports accuracy or performance
- Analyse to validate modeling practices
- Start at the Database/Import view and work up
- **Be wary of making major changes to models in Production**

> Analyse and resolve in stages!

How is 'Model Advisor' different from 'Verify Model'?

- > Verify Model checks model validity
 - Syntax of expressions
 - Determinants are set correctly
 - Captions/Business Keys exist
 - Backward compatibility

 - > Does not require deep understanding of data
 - > Repair is often automatic
- > Model Advisor checks for common modeling problems
 - Cardinality
 - Ambiguous Join Paths
 - Determinants
 - Setting/governor conflicts
 - Minimised SQL
 - Metadata Caching

 - > Requires understanding of data
 - > Does not have automatic repair actions, perhaps no fix req'd

Relationship Analysis – Test 1

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

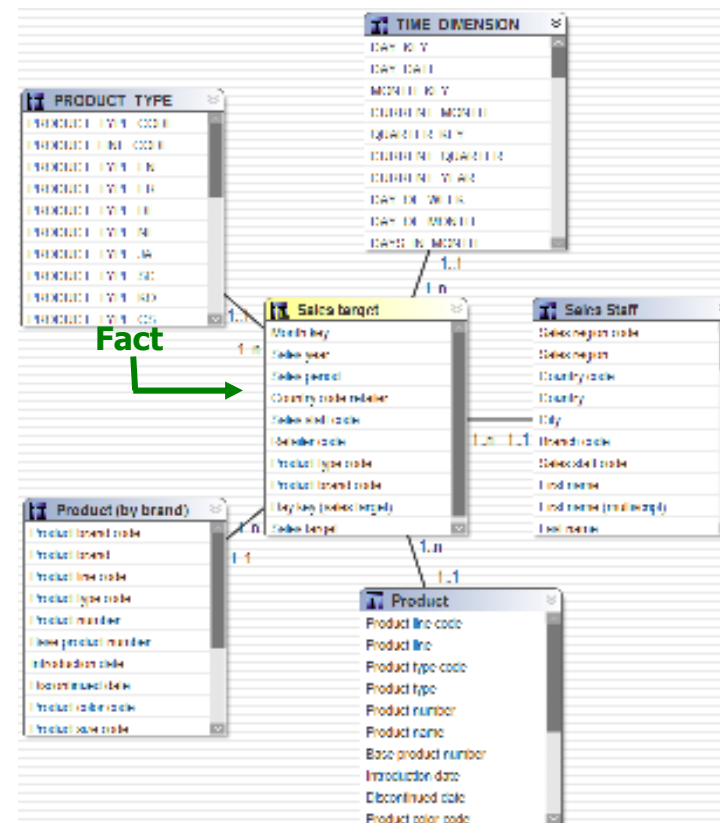
- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Fact Detection

- > Identifies query subjects treated as facts during query generation
- > Detects based on join cardinality (true facts have 1..n on all sides)
- > Correct identification of facts is essential for accurate & consistent reporting



Relationship Analysis – Test 2

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

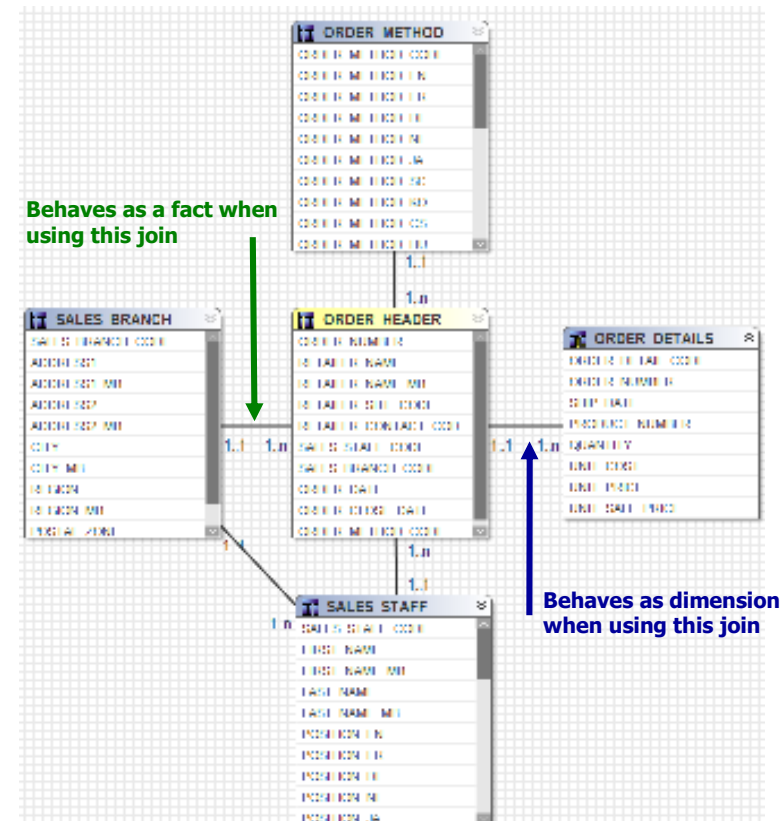
- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Query Subjects Behaving as a Fact or Dimension

- Identified based on join cardinality
- Behavior changes depending on the *context*
- Could lead to unpredictable queries, depending on what authors use
- Not always an issue
 - Snowflake dimensions
 - Master-detail relationship
- You as the modeler need to determine how you want the model to behave



Relationship Analysis – Test 3

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Query Subjects with Multiple Joins

- > Query Subjects with
 - Multiple join path (loops)
 - Multiple joins between 2 query subjects
- > Default resolution
 - Shortest
 - First Alphabetically
- > Resolve for:
 - Predictability
 - Clarity
 - Ease of understanding

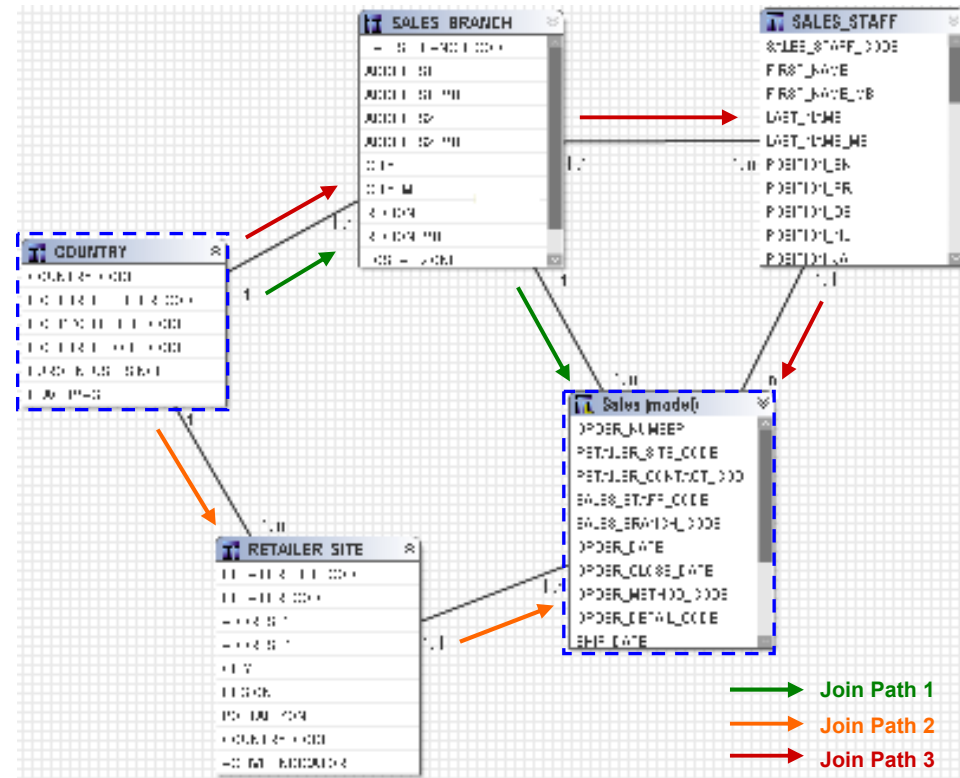
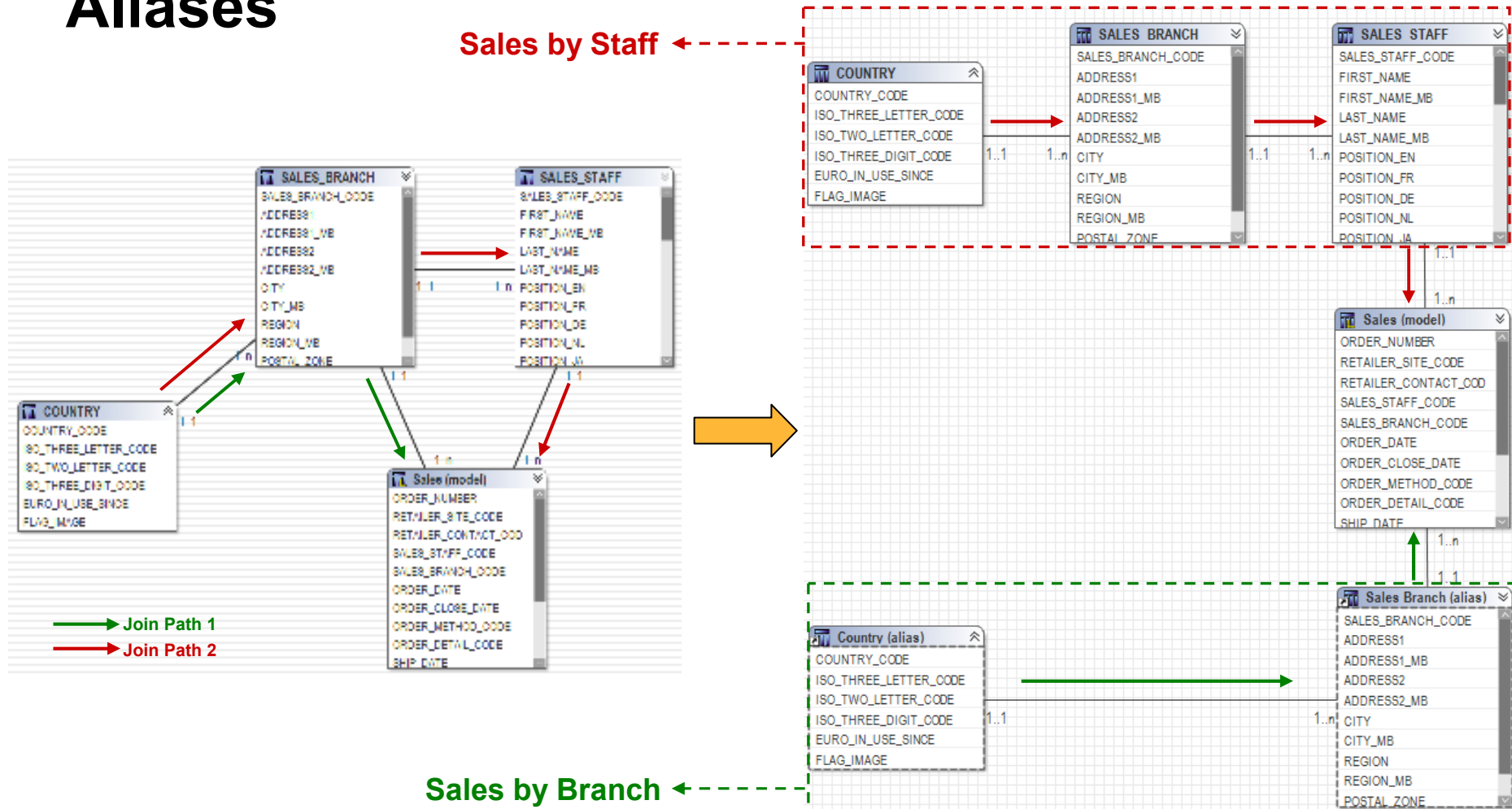
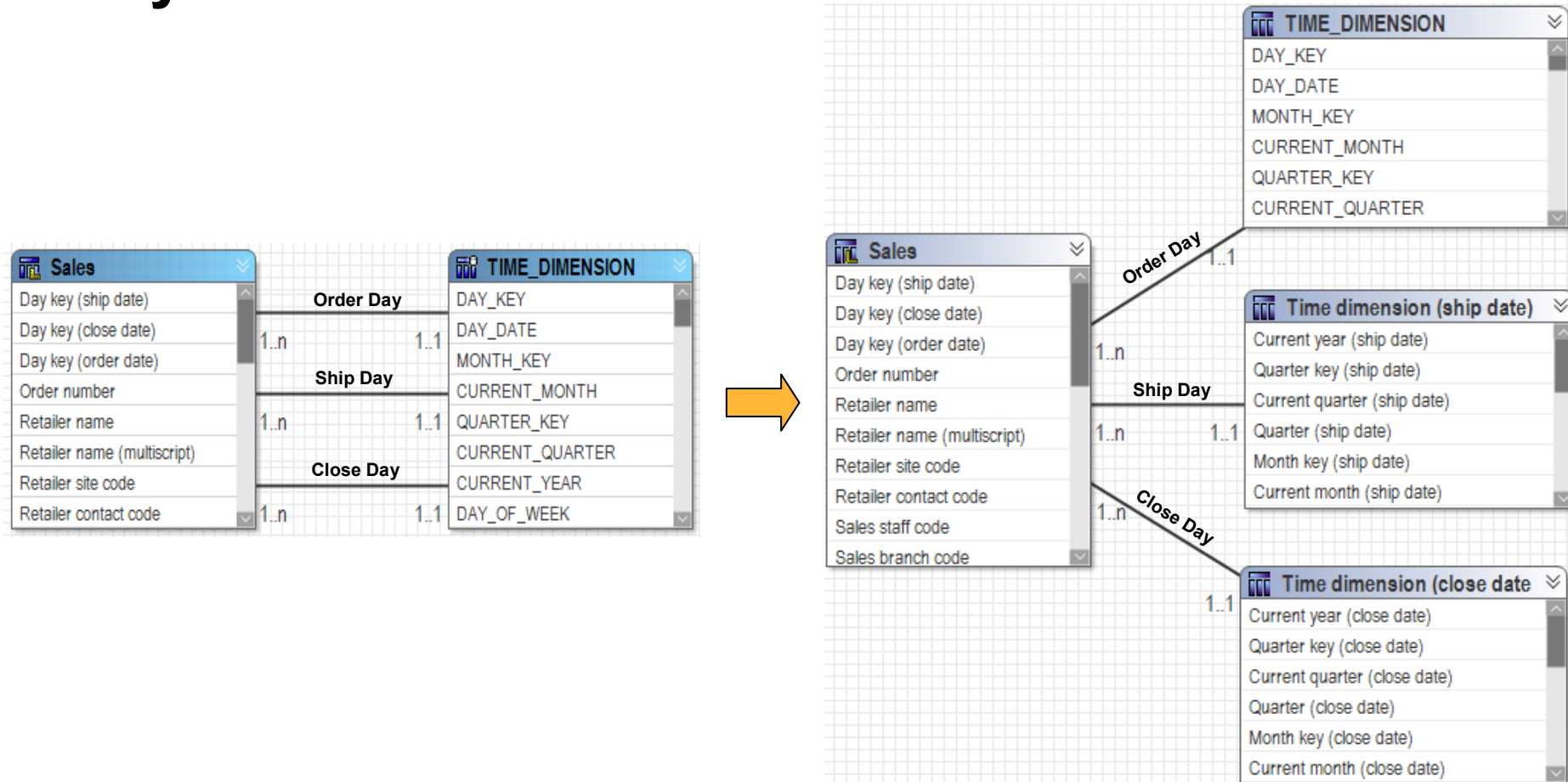


Table	Field	Order Day	Ship Day	Close Day	TIME_DIMENSION
Sales	Day key (ship date)				DAY_KEY
	Day key (close date)	1..n		1..1	DAY_DATE
	Day key (order date)				MONTH_KEY
	Order number				CURRENT_MONTH
	Retailer name	1..n		1..1	QUARTER_KEY
	Retailer name (multiscript)				CURRENT_QUARTER
TIME_DIMENSION	Retailer site code				CURRENT_YEAR
	Retailer contact code	1..n		1..1	DAY_OF_WEEK

Example 1: Clarify Multiple Join Paths via Aliases



Example 2: Resolve Multiple Joins via Role Plays



Relationship Analysis – Test 4

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Self-joined Query Subjects – Flatten them

> Reflexive & recursive relationships

- Parent-child relationship
- Two or more levels of granularity

> Shown in Model, but not used by query engine

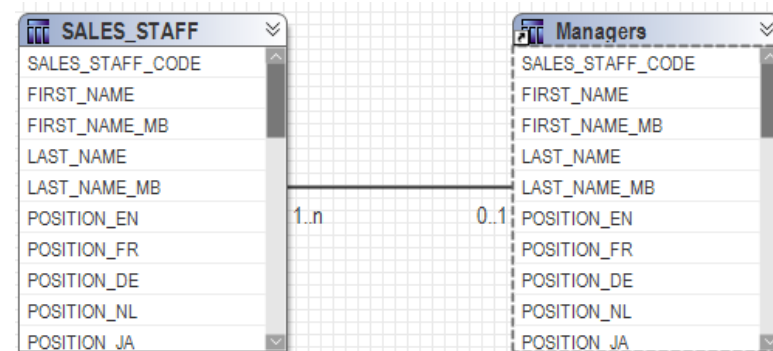
> Options

- Flatten via Modeling in FM
- Flattening in data source (preferred)

SALES_STAFF
SALES_STAFF_CODE
SALES_BRANCH_CODE
MANAGER_CODE
FIRST_NAME
FIRST_NAME_MB
LAST_NAME
LAST_NAME_MB
POSITION_EN
POSITION_FR
POSITION_DE



Modeling Approach



Determinants Analysis – Test 5

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Determinants Conflict with Relationships

- > Applies only to query subjects with determinants

- > **Determinants should align with relationships!**

- > Inaccurate or conflicting determinants can lead to:
 - Incorrect aggregation
 - Double counting
 - Performance issues

Example: Determinants Info

Quarter repeats for each year

Unique within Query Subject

The screenshot shows the 'Determinants' tool interface. The main table lists determinants with columns for Name, Uniquely Identified, and Group By. The 'DAY' determinant is highlighted in blue, and a blue arrow points to it with the text 'Unique within Query Subject'. The 'QUARTER' determinant is highlighted in red, and a red arrow points to it with the text 'Quarter repeats for each year'. Below the main table, the 'Key' section shows 'DAY_KEY' highlighted in red. The 'Attributes' section lists 'DAY_DATE', 'MONTH_KEY', 'CURRENT_MONTH', 'QUARTER_KEY', and 'CURRENT_QUARTER'. To the left of the screenshot is a diagram of a 'TIME' dimension hierarchy with levels: Year (1..1 to 1..n), Quarter (1..1 to 1..n), Month (1..1 to 1..n), and Day. Below the screenshot are two table panels: 'TIME_DIMENSION' and 'INVENTORY_LEVELS'. The 'TIME_DIMENSION' table lists attributes like DAY_KEY, DAY_DATE, MONTH_KEY, CURRENT_MONTH, QUARTER_KEY, CURRENT_QUARTER, CURRENT_YEAR, and DAY_OF_WEEK. The 'INVENTORY_LEVELS' table lists attributes like INVENTORY_YEAR, INVENTORY_MONTH, WAREHOUSE_BRANCH_CO, PRODUCT_NUMBER, OPENING_INVENTORY, QUANTITY_SHIPPED, ADDITIONS, and UNIT_COST. A 1..1 to 1..n relationship is shown between the two tables.

Name	Uniquely Identified	Group By
YEAR	<input type="checkbox"/>	▼
QUARTER	<input type="checkbox"/>	▼
MONTH	<input type="checkbox"/>	▼
DAY	<input checked="" type="checkbox"/>	▼

Select a determinant to see its keys and attributes.

Key: DAY_KEY

Attributes: DAY_DATE, MONTH_KEY, CURRENT_MONTH, QUARTER_KEY, CURRENT_QUARTER

TIME_DIMENSION	INVENTORY_LEVELS
DAY_KEY	INVENTORY_YEAR
DAY_DATE	INVENTORY_MONTH
MONTH_KEY	WAREHOUSE_BRANCH_CO
CURRENT_MONTH	PRODUCT_NUMBER
QUARTER_KEY	OPENING_INVENTORY
CURRENT_QUARTER	QUANTITY_SHIPPED
CURRENT_YEAR	ADDITIONS
DAY_OF_WEEK	UNIT_COST

1..1 1..n

Miscellaneous Analysis – Test 6

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Factors that Override Minimised SQL

- > Factors that override the Minimised SQL setting
 - Joins between model query subjects
 - Determinants on model query subjects
 - Modifying data source query subjects' SQL

- > Minimised SQL may improve performance in some cases
 - Reduce number of tables used in queries (particularly with normalised structures)

- > Tradeoffs
 - Query encapsulation

Example: Minimised SQL

Products

PRODUCT_LINE
PRODUCT_LINE_CODE
PRODUCT_LINE_EN
PRODUCT_LINE_FR
PRODUCT_LINE_DE
PRODUCT_LINE_NL
PRODUCT_LINE_SC
PRODUCT_LINE_KO
PRODUCT_LINE_JA

PRODUCT_TYPE
PRODUCT_TYPE_CODE
PRODUCT_LINE_CODE
PRODUCT_TYPE_EN
PRODUCT_TYPE_FR
PRODUCT_TYPE_DE
PRODUCT_TYPE_NL
PRODUCT_TYPE_JA
PRODUCT_TYPE_SC

SALES_TARGET
SALES_YEAR
SALES_PERIOD
COUNTRY_CODE_RETAILER
SALES_STAFF_CODE
RETAILER_CODE
RETAILER_NAME
PRODUCT_TYPE_CODE
PRODUCT_BRAND_CODE

Single Business Concept

Products
PRODUCT_MNGE
PRODUCT_LINE_CODE
PRODUCT_LINE_EN
PRODUCT_TYPE_CODE
PRODUCT_LANGUAGE
PRODUCT_NAME
PRODUCT_DESCRIPTION
PRODUCT_TYPE_EN

SALES_TARGET
SALES_YEAR
COUNTRY_CODE_RETAILER
SALES_STAFF_CODE
RETAILER_CODE
RETAILER_NAME
PRODUCT_TYPE_CODE
PRODUCT_BRAND_CODE
SALES_TARGET

SALES_TARGET
SALES_YEAR
COUNTRY_CODE_RETAILER
SALES_STAFF_CODE
RETAILER_CODE
RETAILER_NAME
PRODUCT_TYPE_CODE
PRODUCT_BRAND_CODE
SALES_TARGET

Products
PRODUCT_MNGE
PRODUCT_LINE_CODE
PRODUCT_LINE_EN
PRODUCT_TYPE_CODE
PRODUCT_LANGUAGE
PRODUCT_NAME
PRODUCT_DESCRIPTION
PRODUCT_TYPE_EN

Cognos SQL

```

select
  Products.PRODUCT_TYPE_EN as PRODUCT_TYPE_EN,
  SALES_TARGET.SALES_TARGET as SALES_TARGET
from
  (select
    PRODUCT_TYPE.PRODUCT_TYPE_CODE as PRODUCT_TYPE_CODE,
    PRODUCT_TYPE.PRODUCT_TYPE_EN as PRODUCT_TYPE_EN
  from
    great_outdoors_sales.GOSALES_83.gosales.PRODUCT PRODUCT,
    great_outdoors_sales.GOSALES_83.gosales.PRODUCT_LINE PRODUCT_LINE,
    great_outdoors_sales.GOSALES_83.gosales.PRODUCT_TYPE PRODUCT_TYPE,
    great_outdoors_sales.GOSALES_83.gosales.PRODUCT_NAME_LOOKUP PRODUCT_NAME
  where
    (PRODUCT.PRODUCT_NUMBER = PRODUCT_NAME.PRODUCT_NUMBER) and
    (PRODUCT_TYPE.PRODUCT_TYPE_CODE = PRODUCT.PRODUCT_TYPE_CODE) and
    (PRODUCT_LINE.PRODUCT_LINE_CODE = PRODUCT_TYPE.PRODUCT_LINE_CODE)
  ) Products,
  great_outdoors_sales.GOSALES_83.gosales.SALES_TARGET SALES_TARGET
where
  (Products.PRODUCT_TYPE_CODE = SALES_TARGET.PRODUCT_TYPE_CODE)
                
```

Not Minimised

Overrides
Minimised SQL

Cognos SQL

```

select
  PRODUCT_TYPE.PRODUCT_TYPE_EN as PRODUCT_TYPE_EN,
  SALES_TARGET.SALES_TARGET as SALES_TARGET
from
  great_outdoors_sales.GOSALES_83.gosales.PRODUCT_TYPE PRODUCT_TYPE,
  great_outdoors_sales.GOSALES_83.gosales.SALES_TARGET SALES_TARGET
where
  (PRODUCT_TYPE.PRODUCT_TYPE_CODE = SALES_TARGET.PRODUCT_TYPE_CODE)
                
```

Minimised

Miscellaneous Analysis – Test 7

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Explanation of Calculated Aggregation

- > Order of operations: **Aggregate then Calculate**, typically for ratios

$$\text{Margin} = \frac{\text{sum}(\text{Revenue}) - \text{sum}(\text{Production Cost})}{\text{sum}(\text{Revenue})}$$

- > 'Calculated' aggregate behavior only available for:
 - Stand-alone calculations
 - Embedded calculations in measure dimensions (DMR)
- > 'Calculated' aggregate type will be overridden for:
 - Embedded calculations within query subjects
 - Some embedded calculations within measure dimensions (DMR)
 - Overridden to 'Automatic' aggregate type

$$\text{Margin} = \text{sum}\left(\frac{\text{Revenue} - \text{Production Cost}}{\text{Revenue}}\right)$$

Example 1: Calculated Vs. Automatic

$$\text{Margin} = \frac{\text{sum(Revenue)} - \text{sum(Production Cost)}}{\text{sum(Revenue)}}$$

Calculated

Product line	Revenue	Product cost	Margin
Camping Equipment	\$1,589,036,664.03	\$1,002,237,570.38	36.81%
Golf Equipment	\$726,411,367.89	\$374,217,725.72	47.78%
Mountaineering Equipment	\$409,660,132.90	\$246,384,224.11	35.71%
Outdoor Protection	\$75,994,296.25	\$30,011,013.47	57.54%
Personal Accessories	\$1,885,673,307.78	\$1,109,090,240.49	43.99%
Summary	\$4,686,775,768.85	\$2,761,940,774.17	43.38%

$$\text{Margin} = \frac{\text{Revenue} - \text{Production Cost}}{\text{Revenue}}$$

Automatic

$$\text{Margin} = \text{sum}\left(\frac{\text{Revenue} - \text{Production Cost}}{\text{Revenue}}\right)$$

Product line	Revenue	Product cost	Margin
Camping Equipment	\$1,589,036,664.03	\$1,002,237,570.38	2,101,092.56%
Golf Equipment	\$726,411,367.89	\$374,217,725.72	987,668.13%
Mountaineering Equipment	\$409,660,132.90	\$246,384,224.11	777,327.61%
Outdoor Protection	\$75,994,296.25	\$30,011,013.47	1,085,996.04%
Personal Accessories	\$1,885,673,307.78	\$1,109,090,240.49	14,451,006.08%
Summary	\$4,686,775,768.85	\$2,761,940,774.17	19,403,090.42%

Example 2: Calculated Vs. Automatic

$$revenue = sum(quantity) * sum(unitSalePrice)$$

Calculated

Product line	Quantity	Unit sale price	Revenue
Camping Equipment	27,301,149	\$147.73	\$4,033,200,407.14
Golf Equipment	5,113,701	\$468.84	\$2,397,522,012.82
Mountaineering Equipment	9,900,091	\$95.98	\$950,207,397.85
Outdoor Protection	12,014,445	\$8.30	\$99,667,246.20
Personal Accessories	34,907,705	\$102.92	\$3,592,587,094.76
Summary	89,237,091	\$120.12	\$10,718,911,336.61

$$revenue = quantity * unitSalePrice$$

Automatic

$$revenue = sum(quantity * unitSalePrice)$$

Product line	Quantity	Unit sale price	Revenue
Camping Equipment	27,301,149	\$147.73	\$1,589,036,664.03
Golf Equipment	5,113,701	\$468.84	\$726,411,367.89
Mountaineering Equipment	9,900,091	\$95.98	\$409,660,132.90
Outdoor Protection	12,014,445	\$8.30	\$75,994,296.25
Personal Accessories	34,907,705	\$102.92	\$1,885,673,307.78
Summary	89,237,091	\$120.12	\$4,686,775,768.85

Miscellaneous Analysis – Test 8

Options | Model Advisor

The Model Advisor uses criteria from our modeling recommendations to assist you in identifying and resolving potential issues in the model that can affect reporting results and performance.

Relationship Analysis

Relationship Analysis will evaluate all query subjects for one or more of the following:

- Facts identified by cardinality
- Query subjects that can behave as facts or dimensions
- Query subjects with multiple relationships
- Query subjects that join to themselves

Determinants Analysis

Determinants can be used to uniquely identify sets within the data. The Determinants Analysis will identify possible problems.

Select the determinants issues you wish to identify in the model.

- Determinants that conflict with relationships

Miscellaneous Analysis

- Factors that will override the Minimized SQL setting
- Embedded calculations that use the calculated aggregation type
- Query subjects that can cause a metadata caching conflict

Look for Query Subjects that can cause Metadata Caching conflict

- > Metadata imported from the database is always stored in the FM model
 - Data type, size, scale, precision

- > Cached metadata used for query generation, rather than requesting from db

- > Factors that override cached metadata
 - Modification to SQL in data source query subjects
 - Adding calculations or filters to data source query subject
 - Enhanced model portability governor – always requests metadata from the db

- > Most databases support IBM Cognos 8 metadata requests

Detecting Disabled Metadata Caching

Query Subject Definition - PRODUCT_MULTILINGUAL

SQL | Calculations | Filters | Determinants | Test | **Query Information**

Query: Response print

```

PRODUCT_MULTILINGUAL3
</message>
<message severity="information" title="QE-DEF-0469 QE Message" type="general">RQP-DEF-0543
Metadata will be retrieved from the database, because a simple DB query subject definition with matching
</message>
<message severity="information" title="QE-DEF-0469 QE Message" type="nativeSQL">select
"PRODUCT_MULTILINGUAL"."PRODUCT_NUMBER" AS "PRODUCT_NUMBER", "PRODUCT_MULTILINGUAL"."LANGU
from "gosl"."PRODUCT_MULTILINGUAL" "PRODUCT_MULTILINGUAL"
where "PRODUCT_MULTILINGUAL"."LANGUAGE" = N'EN'
</message>
</messageFolder>
</messageFolder>
-<queryFeedbackResult>
<property name="nativeCommandText" queryName="rsdfmQuery">select
"PRODUCT_MULTILINGUAL"."PRODUCT_NUMBER" AS "PRODUCT_NUMBER", "PRODUCT_MULTILINGUAL"."LANGU
from "gosl"."PRODUCT_MULTILINGUAL" "PRODUCT_MULTILINGUAL"
where "PRODUCT_MULTILINGUAL"."LANGUAGE" = N'EN'</property>
<property name="CognosCommandText" queryName="rsdfmQuery">with
PRODUCT_MULTILINGUAL3 as
(select

```

Test Sample | Total Rows | Options

OK | Cancel | Help

Additional Resources

> Framework Manager Documentation

- ‘Analyse a Model’ – FM User Guide p.185 – p.190

	Document	Description
Using Framework Manager	Framework Manager <i>User Guide</i> HTML PDF	Creating and publishing models using Framework Manager
	<i>Guidelines for Modeling Metadata</i> HTML PDF	Recommendations for modeling metadata to use in business reporting and analysis

> Model Advisor: A Case Study

- Published at Cognos Proven Practices (<http://provenpractice3:90/default.aspx>)

Ensure Your Success

Classroom Course:
Cognos 8 BI
Framework Manager:
Designing Metadata
Models
CBT: Cognos 8 BI
Framework Manager:
Designing Metadata
Models for SAP BW



Leverage vendor expertise

.....
Guardian Services
when the project is
lead by a partner or
the customer

.....
**Full project services
& assist services**

**Customer
Resource
Center**

<http://support.cognos.com>

.....
Online resources:
Knowledge Base, Proven Practices,
Supportlink articles, Documentation,
SupportTalk (online community)

Q&A

Evaluation Forms

SHARE YOUR FEEDBACK AND WIN

Visit IBM Cognos Central to fill out your session evaluations online.

- > **Each completed evaluation** qualifies you to win one of five \$100 daily prizes.
- > **Complete evaluations for every session you attend** and qualify to win an additional \$500! An overall conference survey will be available at IBM Cognos Central on Friday morning, and will also be emailed to you.