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## Extending BI 11g Analytics with OLAP

Mark Rittman, Director, Rittman Mead  
UKOUG Business Intelligence & Reporting Tools SIG, October 2010

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## Introductions

- Mark Rittman, Co-Founder of Rittman Mead
- Oracle ACE Director, specialising in Oracle BI&DW
- 14 Years Experience with Oracle Technology
- Regular columnist for Oracle Magazine
- Author of forthcoming Oracle Press book on OBIEE 11g
- Writer for Rittman Mead Blog :  
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- Email : [mark.rittman@rittmanmead.com](mailto:mark.rittman@rittmanmead.com)
- Twitter : @markrittman



## Rittman Mead Consulting

- Oracle BI&DW Project Specialists providing consulting, training and support
- Clients in the UK, USA, Europe, Middle-East, AsiaPac
- Voted UKOUG BI Partner of the Year 2008
- Offices in Europe, North America and India
- Regular speakers at user group and Oracle events



**Oracle Business Intelligence**  
**11g Upgrades**

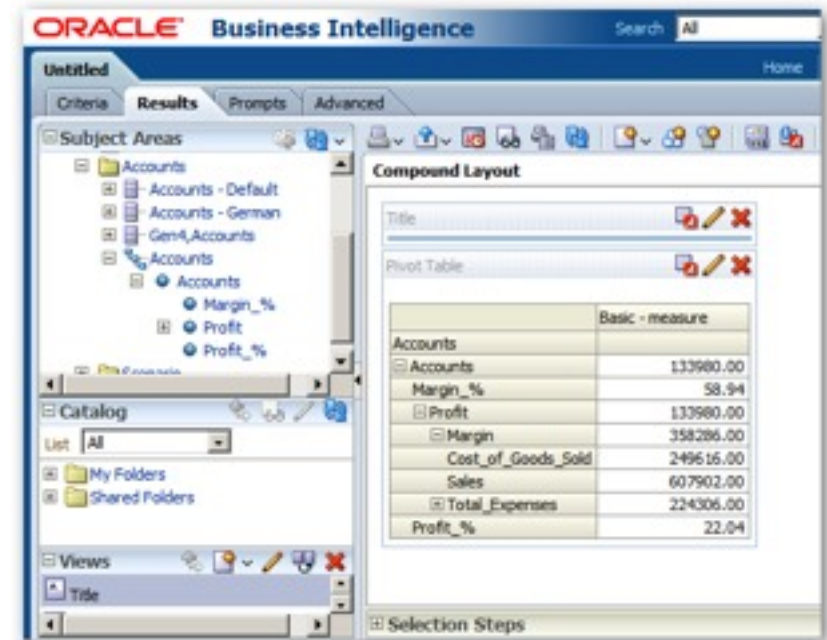
Looking to upgrade from OBIEE 10g to 11g?  
Click here for details on Rittman Mead's fixed-price Upgrade Service >

The advertisement features a background of silhouettes of business professionals in a meeting, with various charts and graphs overlaid. The text is prominently displayed in the upper left and center, with a call to action at the bottom.

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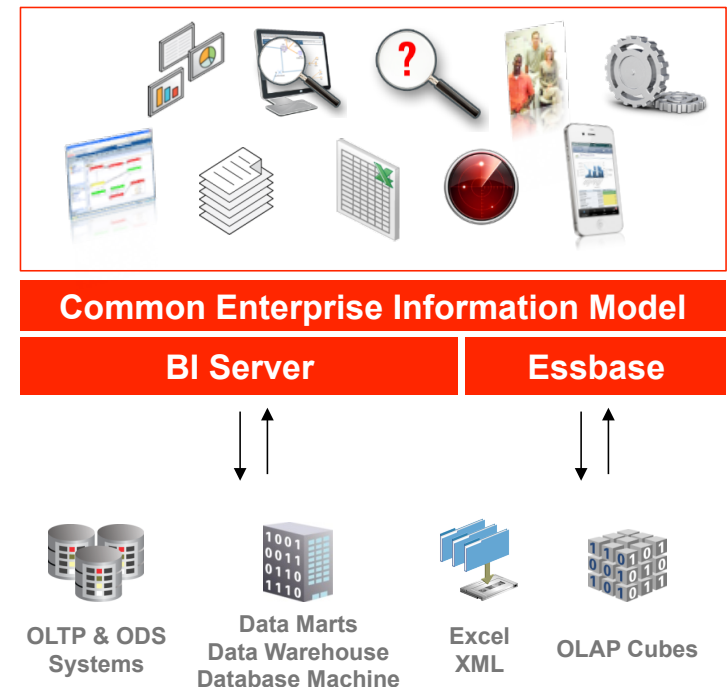
## New Answers and Dashboards Features in OBIEE 11g

- Improved support for OLAP-style reporting
  - ▶ Hierarchical columns
  - ▶ Support for ragged and skip-level hierarchies
  - ▶ Dynamic re-arrangement of pivot tables in the dashboard
- Dynamic grouping and custom aggregates
- New visualizations and dashboard controls
- Updated graphing engine (ADF DVT)
- New gauge types and graphics




## OBIEE 11g Data Sources and Architecture

- OBIEE 11g supports both relational and multi-dimensional data sources
  - ▶ Oracle, SQL Server, Teradata, DB/2 etc
  - ▶ Oracle Essbase, Oracle OLAP, Microsoft Analysis Services etc
- All data is managed through a Semantic Model
  - ▶ Abstraction away from application data models
  - ▶ Represent data in the form of a logical dimensional model
- All OLAP analysis in OBIEE 11g is available for all data sources
  - ▶ Combined ROLAP and MOLAP analysis using one tool



## Hierarchical Columns

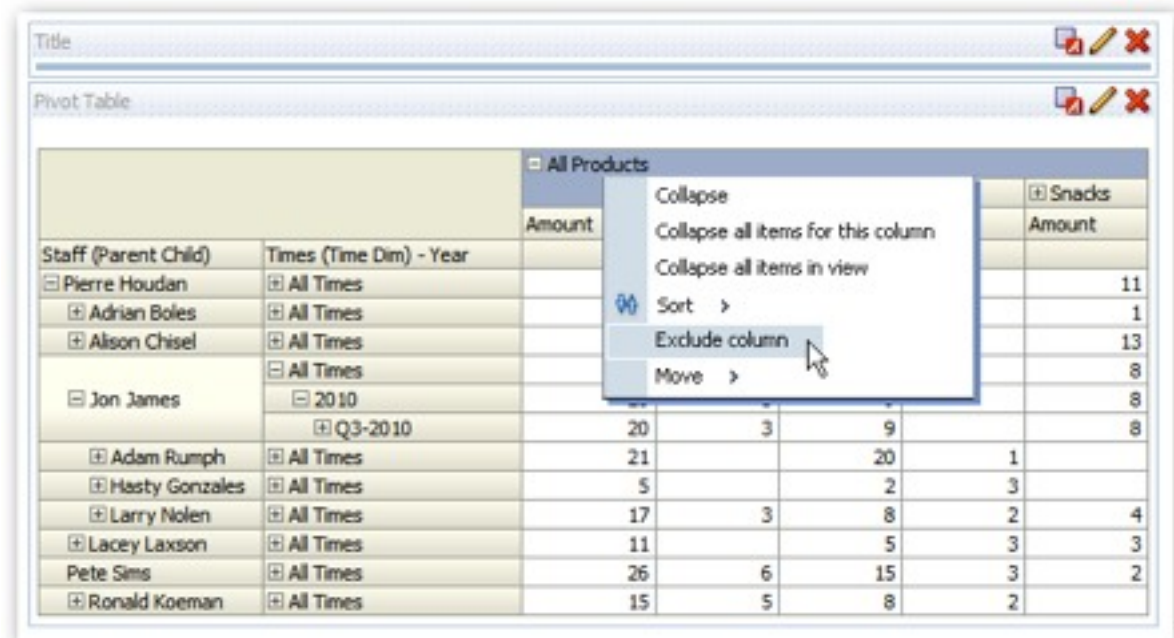
- OBIEE 11gR1 now supports concept of “hierarchical columns”
  - ▶ In-column drilling up and down a hierarchy
  - ▶ Similar concept to Discoverer and other OLAP tools
  - ▶ Regular columns still supported, now renamed “attribute columns”
- Supports level-based and ragged (parent-child) hierarchies
- Flexible totalling and ability to determine leaf-levels, ancestors, parents etc
- Works with both relational and OLAP (Essbase, Oracle OLAP etc) data sources



Staff (Parent Child)	Amount
<input type="checkbox"/> Pierre Houdan	53
<input type="checkbox"/> Adrian Boles	8
<input type="checkbox"/> Alison Chisel	37
<input type="checkbox"/> Cassandra Barry	11
<input type="checkbox"/> Russell Durkee	5
<input type="checkbox"/> Jon James	20
<input type="checkbox"/> Lacey Laxson	11
<input type="checkbox"/> Doris Lines	10
Malcom Doig	40
Vernice Kennebeck	19
Pete Sims	26
<input type="checkbox"/> Ronald Koeman	15

## Hierarchical Columns and OLAP Reporting

- Hierarchical columns can be used in pivot tables
  - ▶ Can be nested within each other
  - ▶ Can be dynamically re-arranged in the dashboard
  - ▶ Can be used alongside regular attribute and measure columns



The screenshot shows a Pivot Table window with a context menu open over the 'All Products' column. The menu options are: Collapse, Collapse all items for this column, Collapse all items in view, Sort, Exclude column (highlighted by the mouse), and Move. The Pivot Table data is as follows:

		All Products				Snacks
		Amount				Amount
Staff (Parent Child)	Times (Time Dim) - Year					
[-] Pierre Houdan	[+] All Times					11
[+] Adrian Boles	[+] All Times					1
[+] Alison Chisel	[+] All Times					13
[+] Jon James	[+] All Times					8
	[-] 2010					8
	[+] Q3-2010	20	3	9		8
[+] Adam Rumph	[+] All Times	21		20	1	
[+] Hasty Gonzales	[+] All Times	5		2	3	
[+] Larry Nolen	[+] All Times	17	3	8	2	4
[+] Lacey Laxson	[+] All Times	11		5	3	3
Pete Sims	[+] All Times	26	6	15	3	2
[+] Ronald Koeman	[+] All Times	15	5	8	2	

## Hierarchical Columns and Selection Steps (Filtering)

- Incremental (status-aware) filter steps can be defined for hierarchical columns
- Add, remove, keep dimension members
- Reference members by their position in the hierarchy
- Add member conditions referencing measures
- Combine with regular filters on attribute columns

The screenshot shows a software interface with a pivot table and a configuration dialog. The pivot table displays data for 'Staff (Parent Child)' with columns for 'Staff (Parent Child)' and 'Amount'. The data rows are: Alison Chisel (37), Gerardo Sae (32), Malcom Doig (40), and Pierre Houdan (53). The 'Selection Steps' panel shows a list of steps: 1. Start with all members, 2. Then, Keep only members of Staff (Parent Child) where 'Store Sales - Sales', 'Sales', 'Amount' is greater than 30, and 3. Then, New Step... The 'Edit Condition Step - Staff (Parent Child)' dialog is open, showing the configuration for step 2. It includes fields for 'Condition Type X>=Value', 'Action' (Keep only), 'Measure' (Sales, Amount), 'Operator' (Greater than), and 'Value' (30).

Staff (Parent Child)	Amount
Alison Chisel	37
Gerardo Sae	32
Malcom Doig	40
Pierre Houdan	53

**Edit Condition Step - Staff (Parent Child)**

Condition Type X>=Value

Action: Keep only Of "Store Sales - Sales"."Staff (Parent Child)"."Staff (Parent Child)"

WHERE

Measure: Sales, Amount

Operator: Greater than

Value: 30

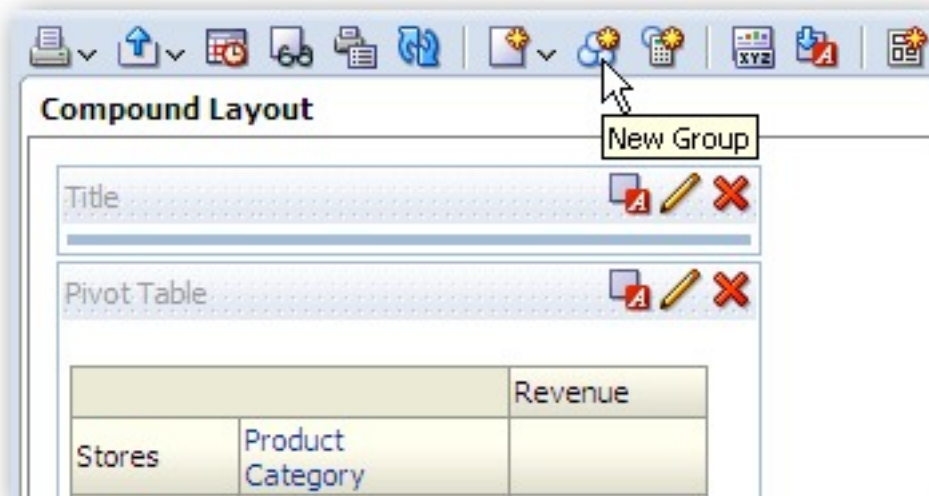
Override with: Prompt

Selection Steps:

1. Start with all members
2. Then, Keep only members of Staff (Parent Child) where "Store Sales - Sales", "Sales", "Amount" is greater than 30
3. Then, New Step...

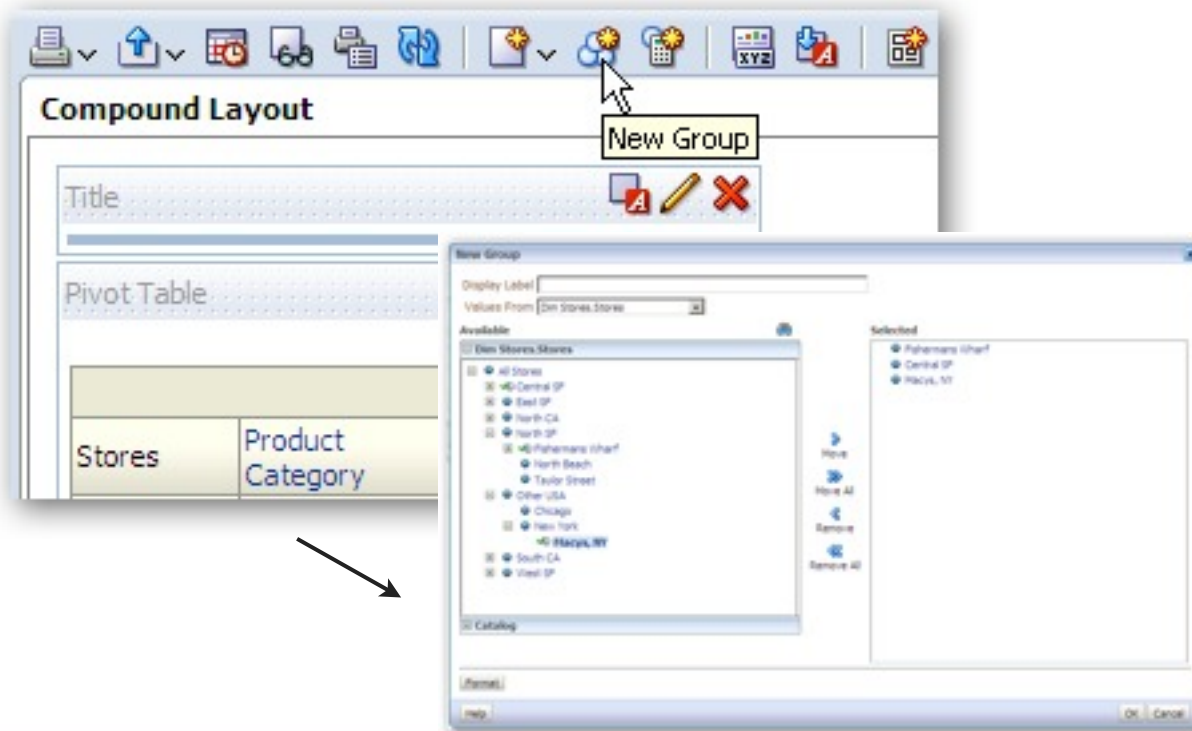
## Hierarchy Groups

- Groups can be created in Answers 11g for custom aggregations
- Preserves hierarchy within group, can drill-down from selected members
- Existing calculated member feature still available



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## Hierarchy Groups

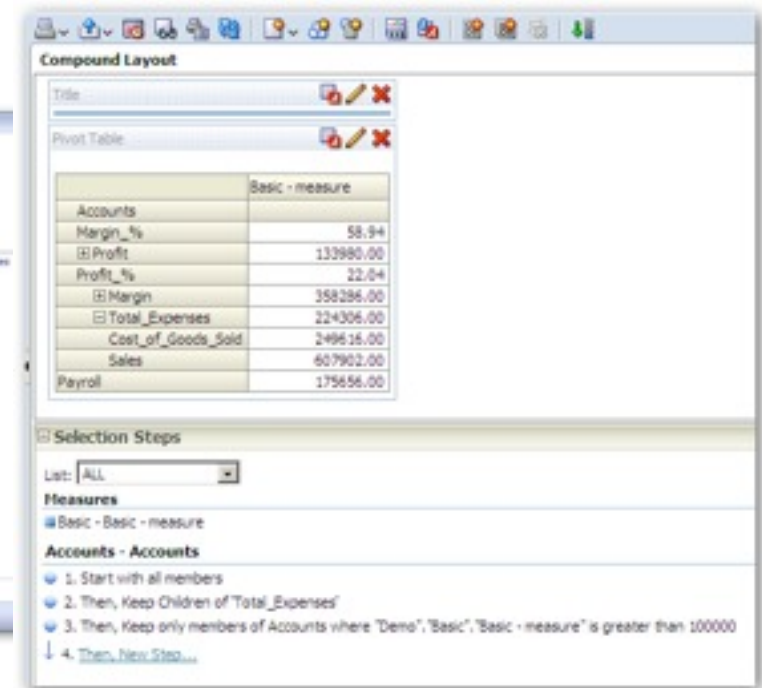
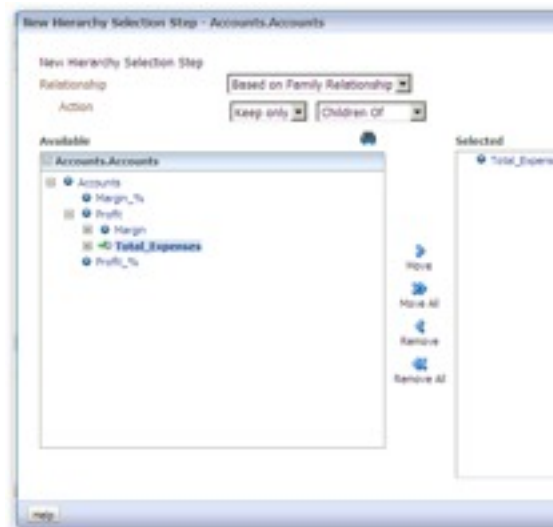
- Groups can be created in Answers 11g for custom aggregations
- Preserves hierarchy within group, can drill-down from selected members
- Existing calculated member feature still available

The screenshot illustrates the process of creating a hierarchy group in Oracle Answers 11g. On the left, the 'Compound Layout' window shows a pivot table with columns 'Stores' and 'Product Category'. A 'New Group' button is highlighted in the toolbar. The 'New Group' dialog box is open, showing a tree view of available members under 'Dim Stores.Stores'. The 'Selected' list contains 'Fishermans Wharf', 'Central SF', and 'Macys, NY'. On the right, the resulting pivot table is shown with a red box highlighting the 'Test Stores and Areas' group, which contains sub-rows for 'Central SF', 'SFO', 'Fishermans Wharf', 'Macys, SF', 'Nordstroms, SF', and 'Macys, NY'.

Stores	Product Category	Revenue
All Stores	Bread	6246.00
	Drinks	1821.69
	Gifts	923.44
	Snacks	2037.36
Test Stores and Areas	Bread	304.15
	Drinks	76.27
	Gifts	113.95
	Snacks	90.88
Central SF	Bread	94.70
	Drinks	28.42
	Gifts	58.97
	Snacks	41.95
SFO	Bread	79.80
	Drinks	20.94
Fishermans Wharf	Bread	209.45
	Drinks	47.85
	Gifts	54.98
	Snacks	35.95
Macys, SF	Bread	14.95
	Drinks	2.99
Nordstroms, SF	Drinks	6.48
	Snacks	15.98
Macys, NY	Snacks	12.98

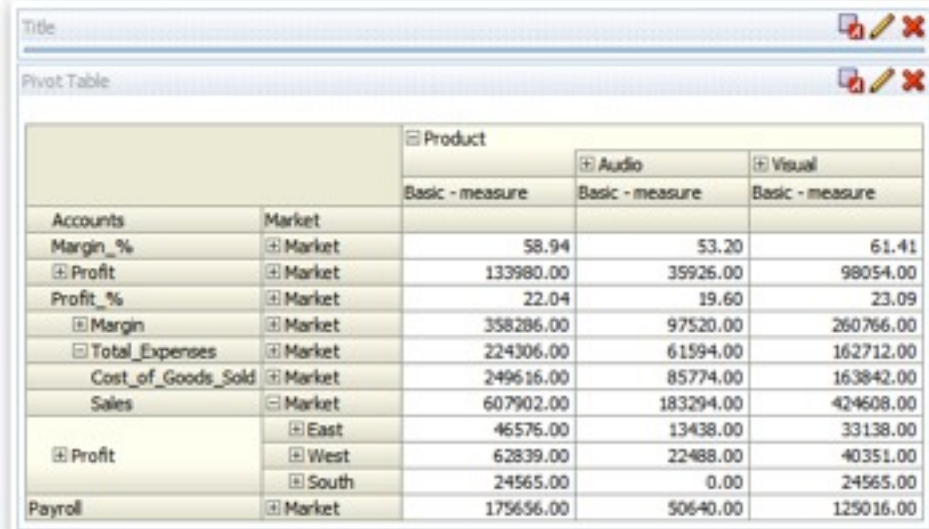
## Improved Support for Essbase

- Hierarchical columns work with both Essbase and relational data
- Support for ragged, skip-level and parent-child hierarchies
- Support for evolving Essbase outlines (additional members, generations etc)
- Member browsing
- Member selection by position in hierarchy
- Support for UDAs, multiple alias tables etc



## Resolving (Most) Essbase Issues

- Outline evolution now supported
- Support for multiple aliases
- In-column drilling
- Member browsing and selection
- Still outstanding : full function-pushdown to MDX
- Note:



		Product		
		Audio	Visual	
		Basic - measure	Basic - measure	Basic - measure
Accounts	Market			
Margin_%	Market	58.94	53.20	61.41
Profit	Market	133980.00	35926.00	98054.00
Profit_%	Market	22.04	19.60	23.09
Margin	Market	358286.00	97520.00	260766.00
Total_Expenses	Market	224306.00	61594.00	162712.00
Cost_of_Goods_Sold	Market	249616.00	85774.00	163842.00
Sales	Market	607902.00	183294.00	424608.00
Profit	East	46576.00	13438.00	33138.00
	West	62839.00	22488.00	40351.00
	South	24565.00	0.00	24565.00
Payroll	Market	175656.00	50640.00	125016.00



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## Demonstration

OLAP Analysis and Support for Essbase in OBIEE 11gR1

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## Summary and Further Reading

- OBIEE 11g comes with a wide range of new features
- New graphing, mapping, scorecard and OLAP analysis features
- Better integration with Essbase and non-relational data (ADF etc)
- Extended RPD capabilities including lookup tables, double-columns
- Leverages Oracle WebLogic Server and Oracle Enterprise Manager
- Improved systems management capabilities
- For more details, check out these resources:
  - ▶ <http://www.rittmanmead.com/obiee11g>
  - ▶ <http://www.rittmanmead.com/blog>
  - ▶ @rittmanmead
  - ▶ @markrittman
- Contact me at [mark.rittman@rittmanmead.com](mailto:mark.rittman@rittmanmead.com) to discuss further





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