

Reporting with Analysis Services

Working with a multidimensional data source



Overview

- Query Designer
- Extended Field Properties
- Aggregations
- Calculations
- Parameters

Query Designer – Design Mode

Cube selection

Metadata pane

Calculated Members pane

Query Designer

Adventure Works

Metadata

Measure Group: <All>

Adventure Works

- Measures
- KPIs
- Customer
- Date
- Delivery Date
- Employee
- Geography
- Internet Sales Order Details
- Product
- Promotion
- Reseller
- Reseller Sales Order Details
- Sales Channel
- Sales Reason
- Sales Summary Order Details
- Sales Territory
- Ship Date
- Source Currency

Calculated Members

- Sales Variance

Dimension	Hierarchy	Operator	Filter Expression	Param...
Date	Date.Calendar	Equal		<input checked="" type="checkbox"/>
Sales Territory	Sales Territory	Equal		<input checked="" type="checkbox"/>
<Select dimension>				

Employees	Reseller Sales Amount	Sales Amount Quota	Sales Variance
Ken J. Sánchez	80450596.9823	85339000	-4888403.0177
Brian S. Welcker	80450596.9823	85339000	-4888403.0177
Amy E. Alberts	15535946.2559	17442750	-1906803.7441
Jae B. Pak	8503338.6472	9037500	-534161.3528
Rachel B. Valdez	1790640.2311	2585000	-794359.7689
Ranjit R. Varkey Chudu...	4509888.933	5612500	-1102611.067
Stephen Y. Jiang	63320315.3497	66310000	-2989684.6503
David R. Campbell	3729945.3501	4065000	-335054.6499
Garrett R. Vargas	3609447.2163	4447500	-838052.7837
Jillian Carson	10065803.5429	11130000	-1064196.4571
José Edvaldo. Saraiva	5926418.3574	6097500	-171081.6426
Linda C. Mitchell	10367007.4286	10262500	104507.4286
Michael G. Blythe	9293903.0055	6590000	2703903.0055
Pamela D. Ansman-Wolfe	3325102.5952	5485000	-2159897.4048
Shu K. Ito	6427005.5556	7265000	-837994.4444
Tete A. Mensa-Annan	2312545.6905	2603750	-291204.3095
Tsvi Michael. Reiter	7171012.7514	7428750	-257737.2496
Syed E. Abbas	1594335.3767	1586250	8085.3767
Lynn N. Tsoffias	1421810.9252	1280750	141060.9252

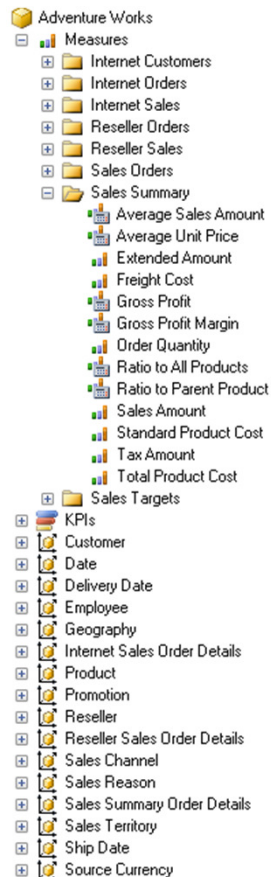
Help OK Cancel

Filter pane

Data pane

Query Designer

Drag and drop from the metadata pane...

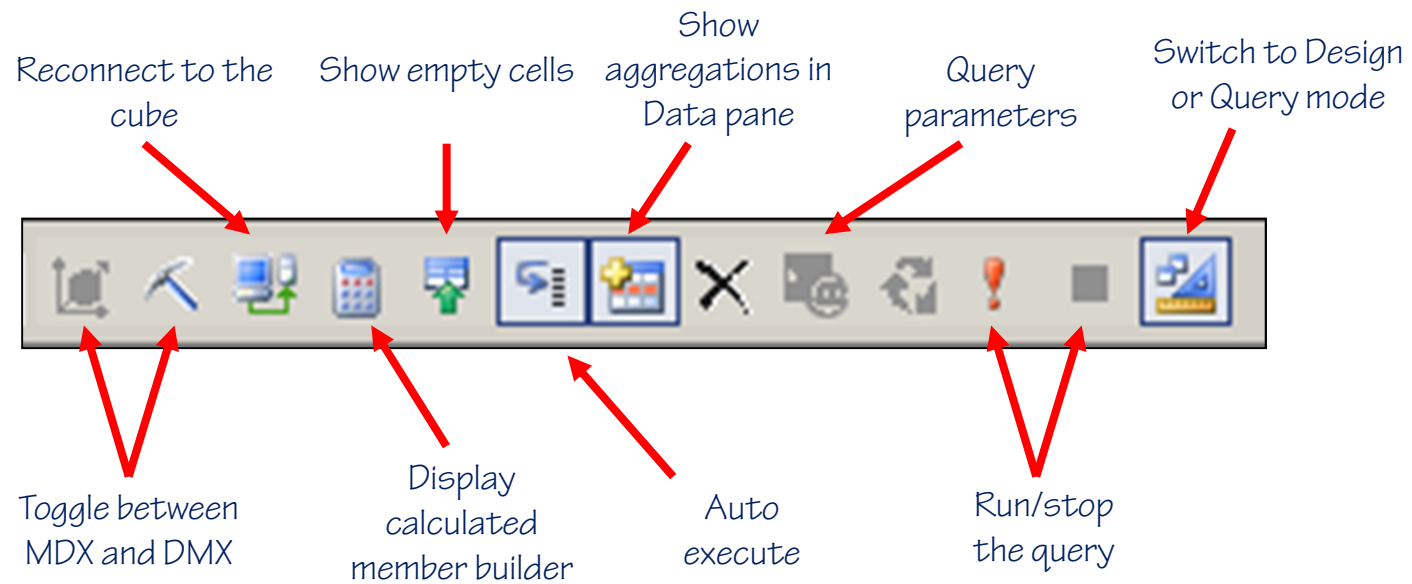


to create an MDX query

*Server-supplied
extended properties
are included by default*

```
SELECT NON EMPTY { [Measures].[Sales Amount] }  
ON COLUMNS,  
NON EMPTY {  
  ([Sales Territory].[Sales Territory].  
  [Region].ALLMEMBERS *  
  [Date].[Calendar Year].[Calendar Year].ALLMEMBERS ) }  
DIMENSION PROPERTIES MEMBER_CAPTION,  
MEMBER_UNIQUE_NAME  
ON ROWS FROM [Adventure Works]  
CELL PROPERTIES VALUE, BACK_COLOR, FORE_COLOR,  
FORMATTED_VALUE, FORMAT_STRING, FONT_NAME, FONT_SIZE,  
FONT_FLAGS
```

Query Designer Toolbar

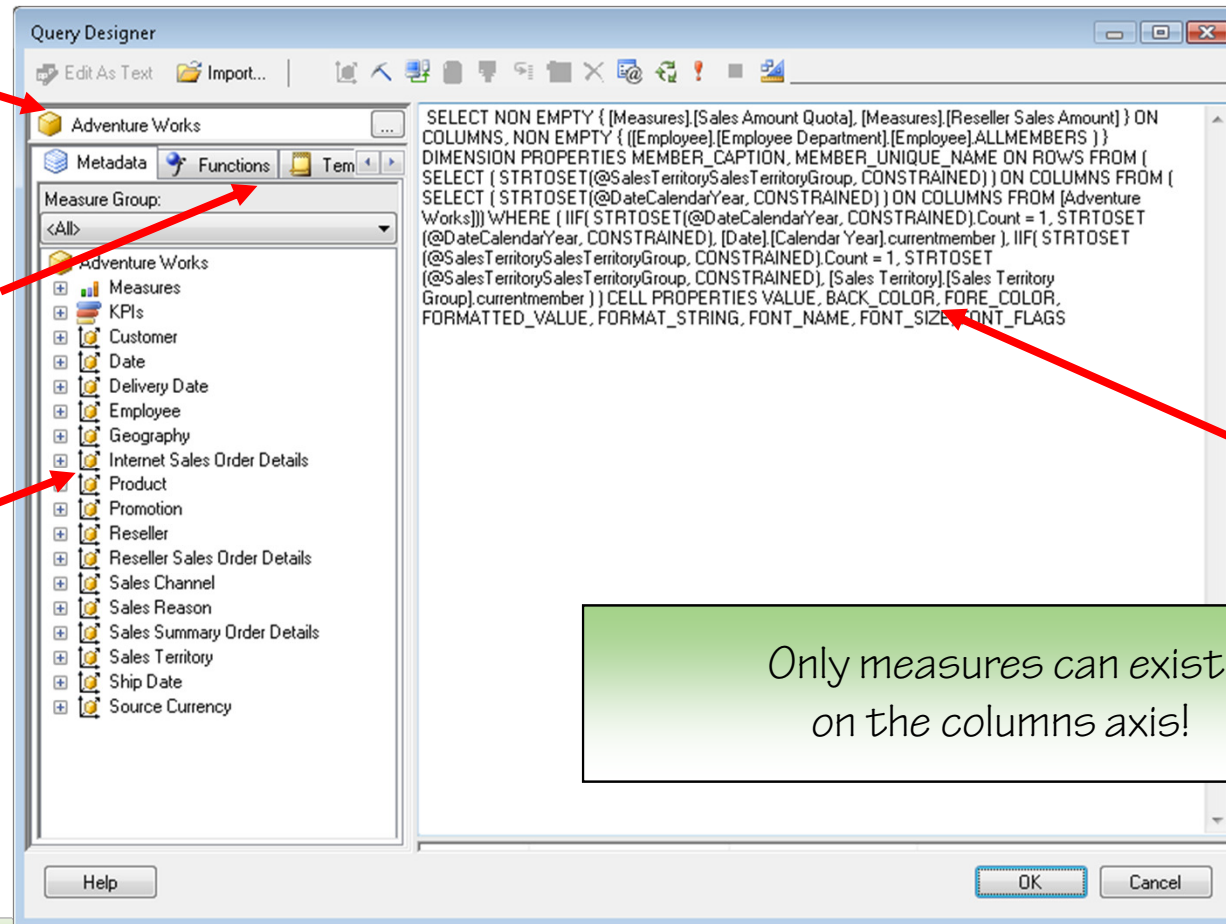


Query Designer - Query Mode

Cube selection

Functions and
templates pane

Metadata pane



Query pane

Extended Field Properties

- **Analysis Services information and formatting rules available**
 - IsMissing
 - UniqueName
 - BackgroundColor
 - Color
 - FontFamily
 - FontSize
 - FontWeight
 - FontStyle
 - TextDecoration
 - FormattedValue
 - Key
 - LevelNumber
 - ParentUniqueName
- **Expression for textbox properties can use extended field properties**

```
=Fields!SalesAmount.BackgroundColor
```

Aggregations

Additive
measure

Non-additive
measures

Category	Reseller Sales Amount	Reseller Gross Profit Margin	Goal Variance
Accessories	\$92,735.35	30.57%	-9.43%
Bikes	\$19,956,014.67	-1.17%	-2.89%
Clothing	\$485,587.15	21.03%	1.03%
Components	\$3,610,092.47	11.80%	1.80%
	\$24,144,429.65	62.23 %	-9.49 %

SUM function



Rules:
1. Grouping defined
2. Design mode query

Category	Reseller Sales Amount	Reseller Gross Profit Margin	Goal Variance
Accessories	\$92,735.35	30.57%	-9.43%
Bikes	\$19,956,014.67	-1.17%	-2.89%
Clothing	\$485,587.15	21.03%	1.03%
Components	\$3,610,092.47	11.80%	1.80%
	\$24,144,429.65	1.34 %	-2.32 %

AGGREGATE
function

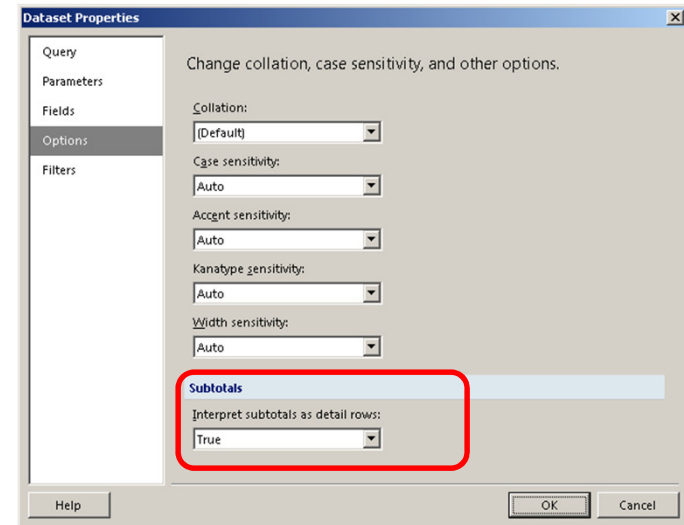


Aggregations

Asymmetrical query

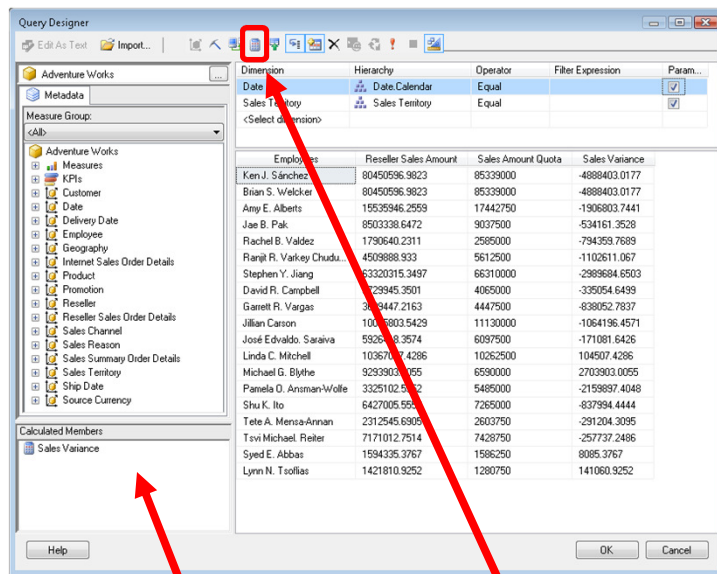
Category	Subcategory	Reseller Sales Amount	Reseller Gross Profit Margin	Goal Variance
Accessories		\$571,297.93	34.27%	9.88%
Bikes	Mountain Bikes	\$26,492,684.38	5.36%	4.28%
	Road Bikes	\$29,358,206.96	-3.99%	-2.05%
	Touring Bikes	\$10,451,490.22	-11.84%	-10.48%
Clothing		\$1,777,840.84	13.07%	-2.58%
Components		\$11,799,076.66	8.75%	-1.25%
		\$80,450,596.98	0.58 %	

Must use expression
for non-additive
measures



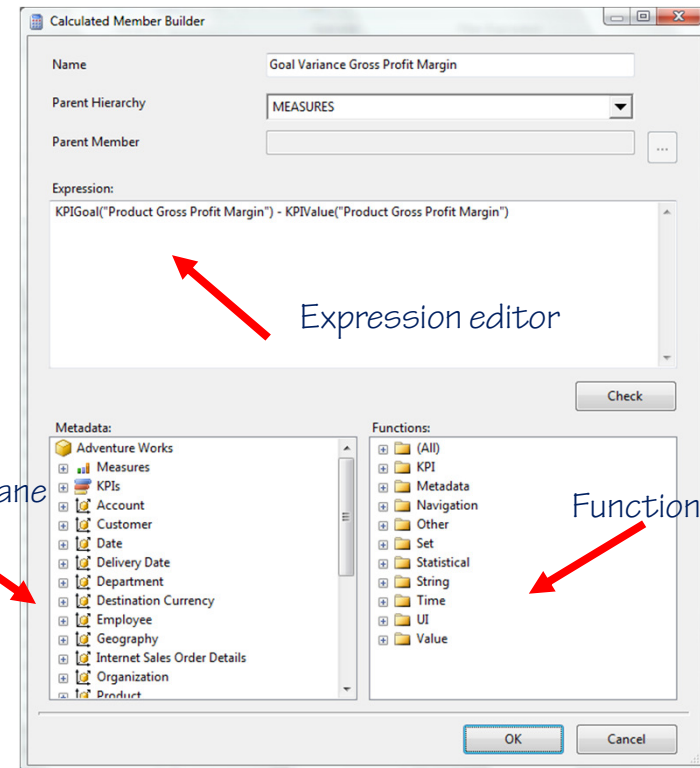
```
=(Sum(Fields!Reseller_Sales_Amount.Value)-
Sum(Fields!Reseller_Gross_Profit_Margin.Value))/
Sum(Fields!Reseller_Sales_Amount.Value)
```

Calculated Members



Click toolbar button...

Or right-click in Calculated Member pane...



... to open Calculated Member Builder

Calculations in Query Mode

```
WITH MEMBER [Measures].[Goal Variance Gross Profit Margin] AS 'KPIGoal("Product Gross Profit Margin") - KPIValue("Product Gross Profit Margin")'

MEMBER [Measures].[Goal Variance Financial Gross Margin] AS KPIValue("Financial Gross Margin") - KPIGoal("Product Gross Profit Margin")

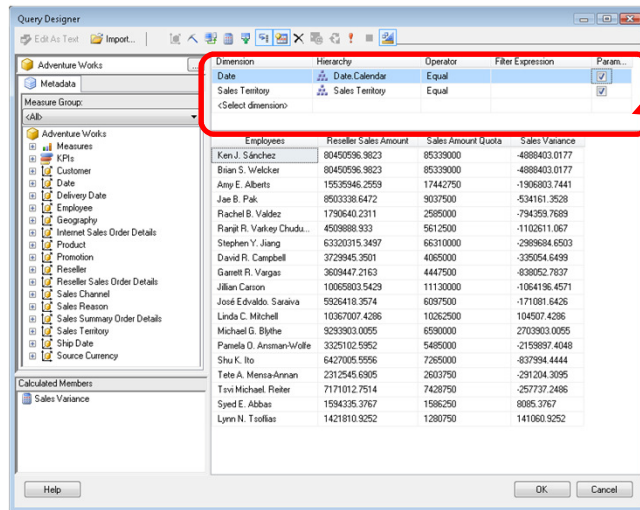
SELECT { [Measures].[Gross Profit Margin], [Measures].[Goal Variance Gross Profit Margin], [Measures].[Sales Amount] } ON COLUMNS, {{[Date].[Calendar Year].[All Periods]} * [Sales Territory].[Sales Territory].[Sales Territory Group].ALLMEMBERS, [Date].[Calendar Year].[Calendar Year].ALLMEMBERS * {[Sales Territory].[Sales Territory].[All Sales Territories]}, [Date].[Calendar Year].[Calendar Year].ALLMEMBERS * [Sales Territory].[Sales Territory].[Sales Territory Group].ALLMEMBERS, ([Date].[Calendar Year].[Calendar Year].ALLMEMBERS * [Sales Territory].[Sales Territory].[Sales Territory Group].ALLMEMBERS ) } DIMENSION PROPERTIES MEMBER_CAPTION, MEMBER_UNIQUE_NAME ON ROWS FROM [Adventure Works] CELL PROPERTIES VALUE, BACK_COLOR, FORE_COLOR, FORMATTED_VALUE, FORMAT_STRING, FONT_NAME, FONT_SIZE, FONT_FLAGS
```

[Click to execute the query.](#)

Calculated members appear in WITH clause

Named sets can also appear in WITH clause

Parameters



Filter pane

Equal
Not Equal
In
Not In
Contains

Begins With
Range (Inclusive)
Range (Exclusive)
MDX

Choose filter operator

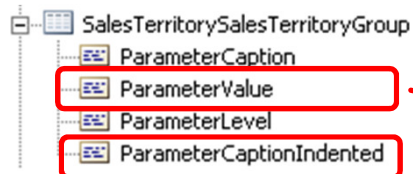
Dimension	Hierarchy	Operator	Filter Expression	Parameters
Date	Date.Calendar Year	Equal	{ CY 2004 }	<input type="checkbox"/>
<Select dimension>				

Add dimension and hierarchy

Select members or enter string expression

Enable parameter

Parameters



`=Space(3*Fields!ParameterLevel.Value) +
Fields!ParameterCaption.Value`

```
WITH MEMBER [Measures].[ParameterCaption] AS '[Sales Territory].[Sales
Territory Group].CURRENTMEMBER.MEMBER_CAPTION' MEMBER
[Measures].[ParameterValue] AS '[Sales Territory].[Sales Territory
Group].CURRENTMEMBER.UNIQUE_NAME' MEMBER [Measures].[ParameterLevel] AS
'[Sales Territory].[Sales Territory Group].CURRENTMEMBER.LEVEL.ORDINAL'
SELECT {[Measures].[ParameterCaption], [Measures].[ParameterValue],
[Measures].[ParameterLevel]} ON COLUMNS , [Sales Territory].[Sales
Territory Group].ALLMEMBERS ON ROWS FROM [Adventure Works]
```

Calendar Control



January, 2008						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Today: 1/8/2011

- Add a query parameter to the MDX query

```
FROM (SELECT ( STRTOSET(@Date)) ON COLUMNS FROM [Adventure Works])
```

- Assign an expression to the query parameter that passes report parameter selection

```
= "[Date].[Calendar].[Date].[" +  
Format(CDate(Parameters!Date.Value), "MMMM d, yyyy") + "]"
```

Format date to match date dimension's
member name structure



Summary

- **Query Builder**
 - Design mode, query mode
- **Extended Field Properties**
 - Color, font, format properties defined in cube, applied in report
- **Aggregations**
 - Aggregate function for non-additive measures except with asymmetrical queries
- **Calculations**
 - Calculated member builder, MDX statement's WITH clause
- **Parameters**
 - Filter pane checkbox for query and report parameter
 - Calendar control requires expression to reformat as date unique name

References

- **Analysis Services MDX Query Designer Interface**
 - <http://msdn.microsoft.com/en-us/library/ms403829.aspx>
- **Extended Field Properties for an Analysis Services Database**
 - <http://msdn.microsoft.com/en-us/library/dd207040.aspx>