

# Dimension Development II

Fine-tuning dimension design

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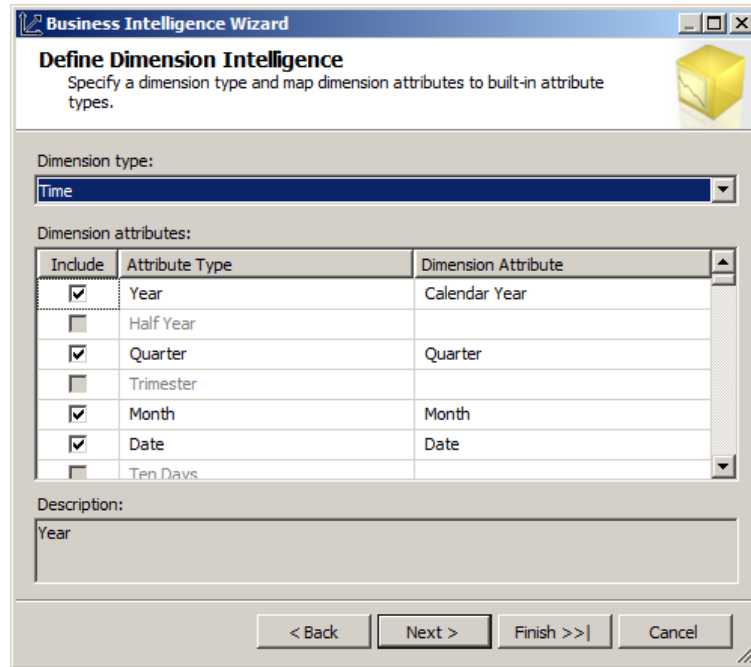
[www.pluralsight.com](http://www.pluralsight.com)



# Overview

- Date Dimension Properties
- Best Practice Warnings
- Hierarchies
- Attribute Relationships
- Translations

# Date Dimension Properties



**Business Intelligence Wizard**  
**Define Dimension Intelligence**  
 Specify a dimension type and map dimension attributes to built-in attribute types.

Dimension type:  
 Time

Dimension attributes:

Include	Attribute Type	Dimension Attribute
<input checked="" type="checkbox"/>	Year	Calendar Year
<input type="checkbox"/>	Half Year	
<input checked="" type="checkbox"/>	Quarter	Quarter
<input type="checkbox"/>	Trimester	
<input checked="" type="checkbox"/>	Month	Month
<input checked="" type="checkbox"/>	Date	Date
<input type="checkbox"/>	Ten Days	

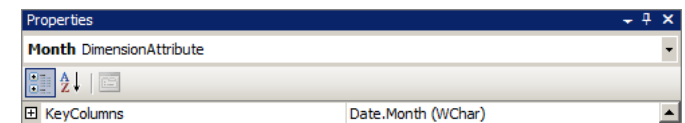
Description:  
 Year

< Back   Next >   Finish >> |   Cancel

- Identifies date dimension to presentation layer tools
- Enables support for MDX functions: YTD, QTD, MTD, WTD

- ☐ All
- 2005 Aug
  - 2005 Dec
  - 2005 Jul
  - 2005 Nov
  - 2005 Oct
  - 2005 Sep
  - 2006 Apr
  - 2006 Aug
  - 2006 Dec

Alphabetical sort



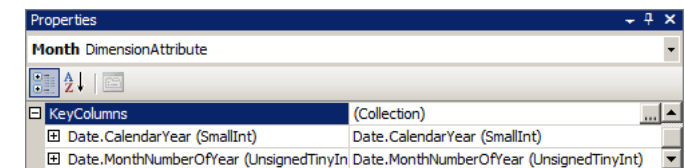
Properties

Month DimensionAttribute

KeyColumns: Date.Month (WChar)

- ☐ All
- 2005 Jul
  - 2005 Aug
  - 2005 Sep
  - 2005 Oct
  - 2005 Nov
  - 2005 Dec
  - 2006 Jan
  - 2006 Feb
  - 2006 Mar

Chronological sort



Properties

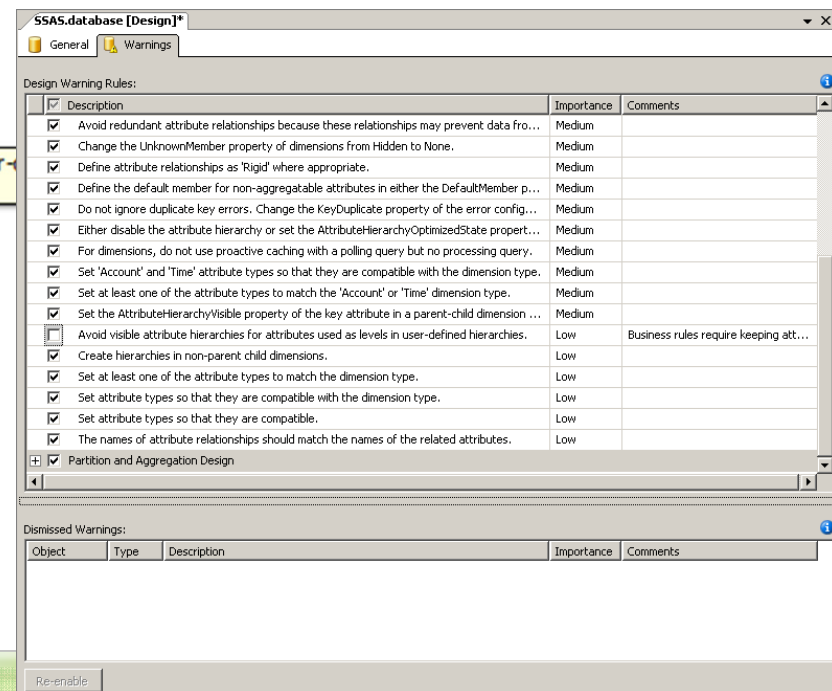
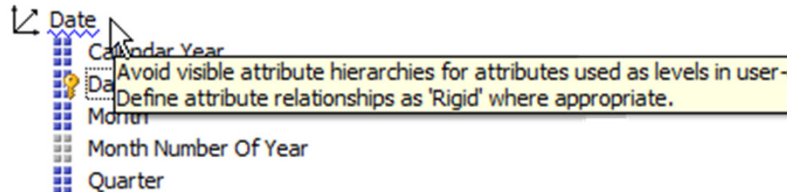
Month DimensionAttribute

KeyColumns: (Collection)

- Date.CalendarYear (SmallInt)   Date.CalendarYear (SmallInt)
- Date.MonthNumberOfYear (UnsignedTinyInt)   Date.MonthNumberOfYear (UnsignedTinyInt)

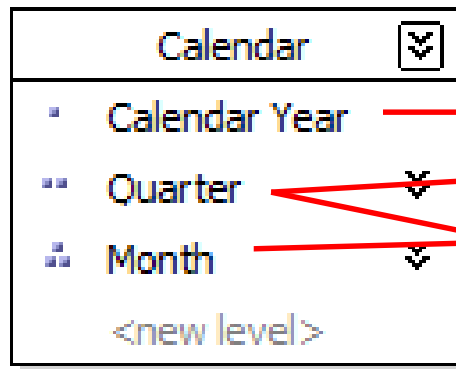
# Best Practice Warnings

- Visual indicators highlight best practice violations
- Dismiss warnings by instance or globally with optional comment



# User Hierarchies

Natural Hierarchy



	A	B
1	Row Labels	Reseller Sales Amount
2	2005	\$8,065,435.31
3	2005 Qtr 3	\$3,193,633.97
4	2005 Jul	\$489,328.58
5	2005 Aug	\$1,538,408.31
6	2005 Sep	\$1,165,897.08
7	2005 Qtr 4	\$4,871,801.34
8	2006	\$24,144,429.65
9	2007	\$32,202,669.43
10	2008	\$16,038,062.60
11	Grand Total	\$80,450,596.98

- Provide a navigation path for drilldown from summary to detail data
- Improve query performance with more optimal storage
- Optionally expose attributes only through user-defined hierarchies

Advanced	
AttributeHierarchyDisplayFolder	
AttributeHierarchyEnabled	True
AttributeHierarchyOptimizedState	FullyOptimized
AttributeHierarchyVisible	False

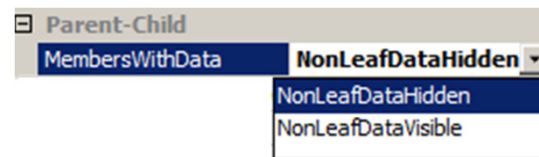
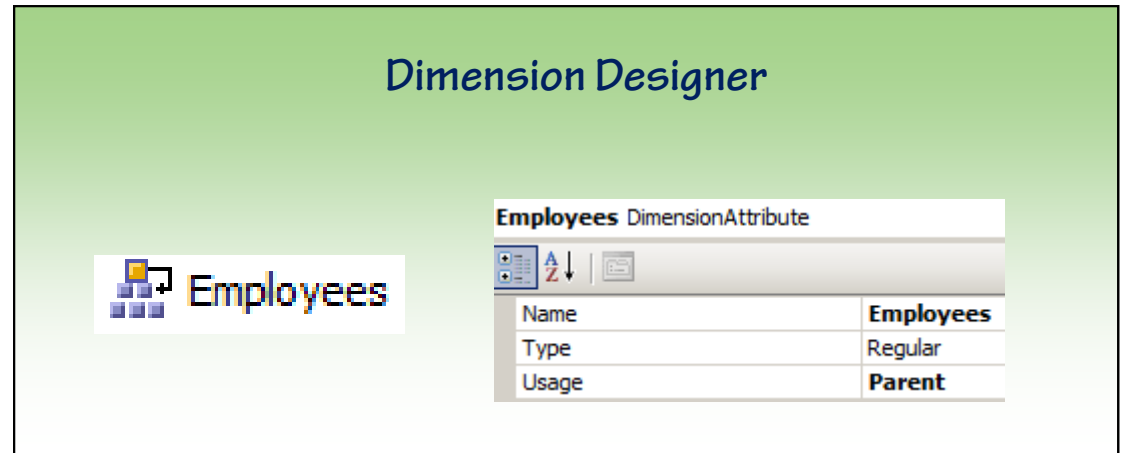
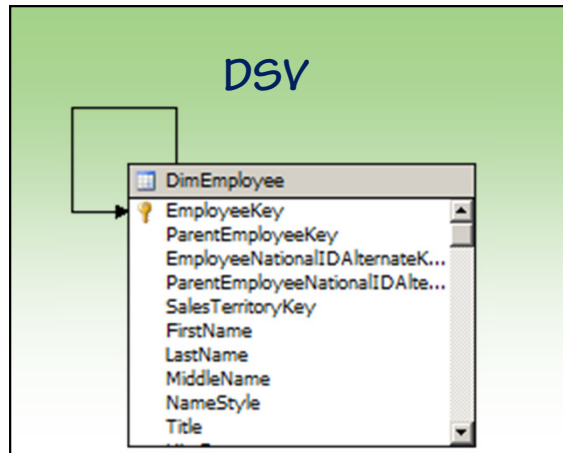
# User Hierarchies

Unnatural Hierarchy

	A	B
1	Row Labels	Reseller Sales Amount
2	Black	\$29,397,712.10
3	Blue	\$7,323,754.69
4	Multi	\$542,559.51
5		\$31,541.35
6	L	\$210,337.70
7	M	\$178,734.75
8	S	\$46,980.40
9	XL	\$74,965.33
10	NA	\$664,187.22
11	Red	\$13,873,560.28
12	Silver	\$14,663,950.87
13	Silver/Black	\$147,483.91
14	White	\$24,638.81
15	L	\$11,870.29
16	M	\$12,768.52
17	Yellow	\$13,812,749.60
18	Grand Total	\$80,450,596.98

- Create a predefined grouping of attributes
- Derive no query performance benefit

# Parent-Child Hierarchy

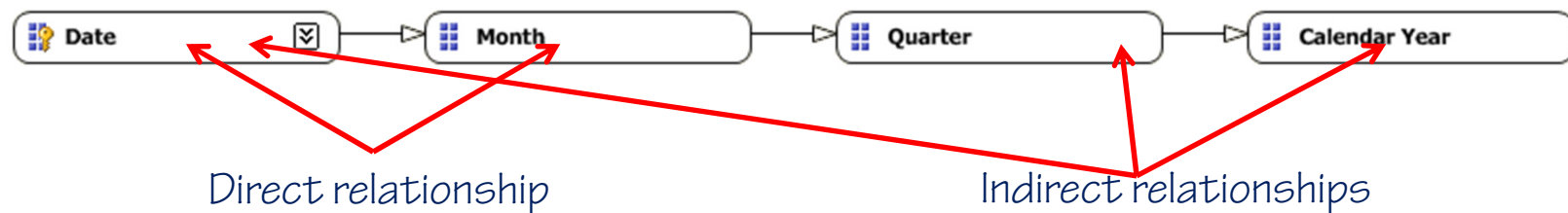


- Provide a flexible structure with different number of levels per branch
- Support data in fact table for non-leaf members

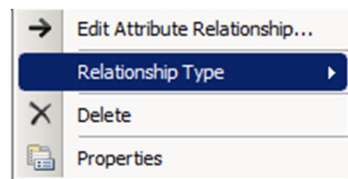


# Attribute Relationships

- Attributes must relate directly or indirectly to facts via key attribute



- Attribute relationships serve multiple purposes
  - Enhance query performance
  - Ensure correct totals
  - Facilitate aggregation design
- Relationship types affect dimension processing



Rearrange attributes but lose aggs

Keep aggs, but fail when attributes move



# Translations



	DateKey	FullDateAlternateKey	DayNum...	EnglishDayNameOfWe...	SpanishDayNameOfWeek	FrenchDayNameOfWeek	DayNum...
1	20050701	2005-07-01	6	Friday	Viernes	Vendredi	1
2	20050702	2005-07-02	7	Saturday	Sábado	Samedi	2
3	20050703	2005-07-03	1	Sunday	Domingo	Dimanche	3
4	20050704	2005-07-04	2	Monday	Lunes	Lundi	4
5	20050705	2005-07-05	3	Tuesday	Martes	Mardi	5

One column per language  
for each attribute to translate

# Translations

Step 1: Add captions

Default Language	Object Type	Spanish (Spain)
↖	Date	Fecha
	All Periods	Todos los Períodos
[-]	Attributes	
📅	Calendar Year	Año Calendario
📅	Date	Fecha
📅	Quarter	Trimestre
📅	Month	Mes
[+]	Hierarchies	
📅	Calendar	Calendario
▪	CalendarYear	Año Calendario
▪▪	Quarter	Trimestre
▪▪▪	Month	Mes
▪▪▪▪	Date	Fecha

Step 2: Map attribute to translation column

**Attribute Data Translation**

Select the source column for the translated member names. Next, specify the collation used to sort the selected column.

Attribute:

Language:

Translated caption:

Translation columns:

- ☐ EnglishDayNameOfWeek
- ☐ EnglishMonthName
- ☐ FrenchDayNameOfWeek
- ☐ FrenchMonthName
- ☐ FullDateAlternateKey
- ☐ Month
- ☐ Quarter
- ☐ SpanishDayNameOfWeek
- ☒ SpanishMonthName

Collation:

Collation designator:

Sort order:

- ☐ Binary
- ☐ Binary 2
- ☐ Case sensitive
- ☒ Accent sensitive
- ☐ Kana sensitive
- ☐ Width sensitive

OK Cancel

# Dimension Development Tasks

- Use the Browser to validate dimension design
- Check labels of dimensions, levels, and members
- Verify members are unique and non-empty
- Add attributes to the dimension as needed
- Set attribute properties
- Organize attributes as user-defined hierarchies
- Arrange attribute relationships
- Add translations as needed

# Summary

- **Date Dimension Properties**
  - Dimension type = Time, attribute types, sort order for months
- **Best Practice Warnings**
  - Guidance towards optimal design, option to dismiss warnings
- **Hierarchies**
  - User-defined hierarchy, natural versus unnatural, parent-child hierarchy
- **Attribute Relationships**
  - Direct and Indirect relationships to key attribute, boost query performance
- **Translations**
  - Provide alternate captions based on user's regional settings

# References

- **Creating User-Defined Hierarchies**
  - <http://msdn.microsoft.com/en-us/library/ms365350.aspx>
- **Defining a Parent-Child Hierarchy**
  - <http://msdn.microsoft.com/en-us/library/ms174846.aspx>
- **Translations**
  - <http://msdn.microsoft.com/en-us/library/ms174552.aspx>