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Universe Designer Essentials and Beyond

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Abstract

- The Universe Designer application has seen some incremental, but very interesting, enhancements with the 3.0 release. This presentation includes a discussion of some of these new features and provides useful tips for customers on prior releases. The session begins with a review of standard design techniques and then demonstrates how to solve them by using the new features from 3.0 or by getting creative with the existing version.

- Session Code 5007
- Tuesday, October 21, 1:30 – 2:30 PM

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Who is Dave?

- Dedicated to BusinessObjects solutions since 1995
  - Consulting / mentoring / troubleshooting
  - Primary focus on knowledge transfer and client education
- Selected to present at 1996 - 2008 user conference
  - 13 consecutive years as a presenter
- Charter Member of BOB
  - http://busobj.forumtopics.com
- I Blog! Dave's Adventures in Business Objects
  - http://www.dagira.com
- Selected to the SAP Mentor program for 2009
- Member of the GBN Steering Committee

Demonstrations Today

- Demonstration universes
  - Island Resorts Marketing
  - eFashion
  - Demonstration databases were converted to Oracle
- Software configuration
  - BusinessObjects Enterprise XI 3.0
  - Oracle 10g

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Agenda

- What's New in Designer 3.0?
- What's Old? Context versus Alias
- Solving the Time Slice Challenge

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What's New For XI 3?

- Multilingual Universes
- Nested Derived Tables
- Prompt Syntax now formally documented
- Universe can be based on stored procedures
- Delegated Measures
- Class Restrictions

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Translation Manager

- Universe components can now be translated
  - Classes
  - Objects
  - Prompts
- Language information is stored with the universe file
- Language selection is based on the user location

- *Note: Data is not translated*

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Nested Derived Tables

- @DerivedTable function
- Include one derived table definition inside another
  - “Loops” are not allowed
  - Primitive form of Inheritance – change one, affect many
  - Join derived tables

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@*Prompt Syntax Formally Documented*

- Extended options have been formally documented
  - No risk as these features are now supported
- Extended Options include
  - primary_key for index aware use
  - persistent / not persistent to retain or drop last selection
  - Default values can be provided
  - default:key for index aware use

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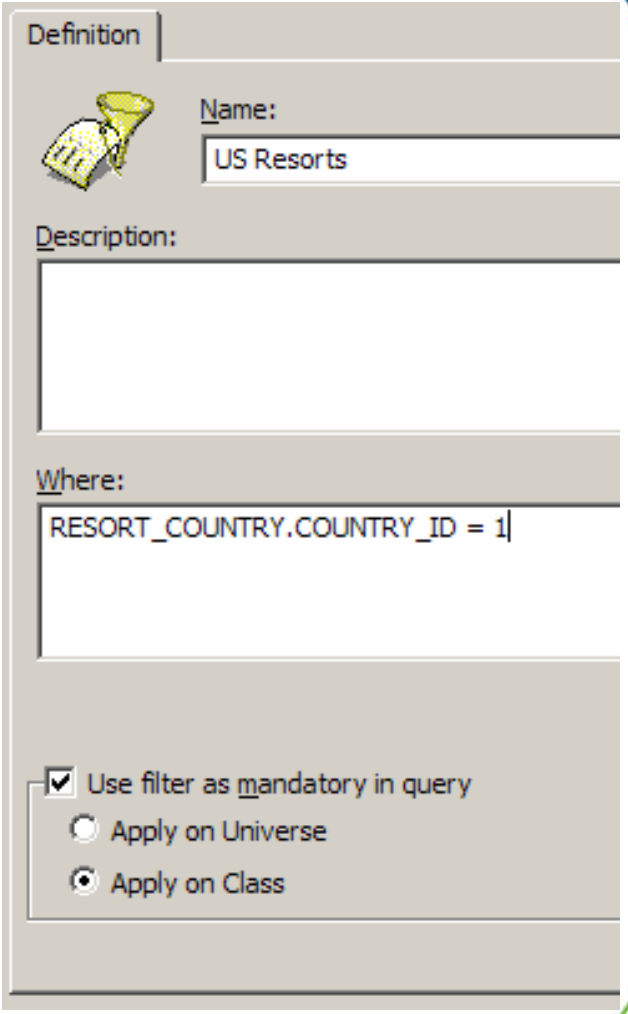
Delegated Measures

- Certain calculations do not work at the report level
  - Percentages, Averages, other “division” operations
- Delegated measures can force the operation back to the database layer
  - Generate correct results
  - Expensive

Demonstration Designer / Report

Class Restrictions

- Table restrictions or “stub joins” only work if a table is used
- Class restrictions let you share the condition
  - Stub joins are only applied when the table is used
  - Class restrictions can be applied to every object in the class



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Context Versus Alias

- Contexts and aliases can be used to resolve join loops
- Contexts are more complex than aliases
  - Aliases break a join loop
  - Contexts retain a join loop but identify a query path

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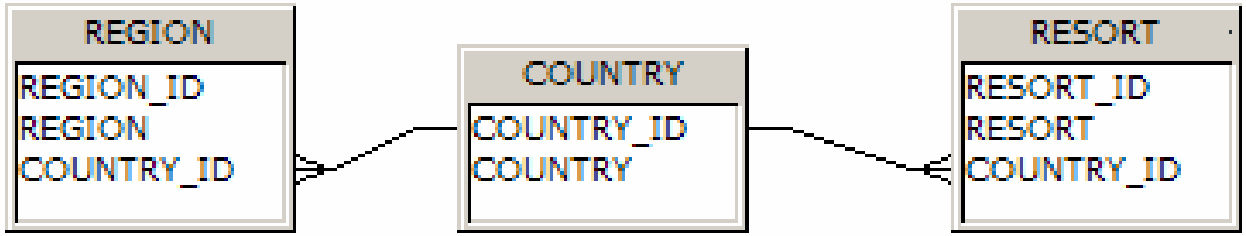
Aliases

- Aliases are primarily used for lookup tables
- Indicated by tables on the “one” side of a one — many join



- Country has two distinct purposes
- In this case two aliases will be created
  - Region_Country is used to show the country for a customer
  - Resort_Country is used to show the resort location

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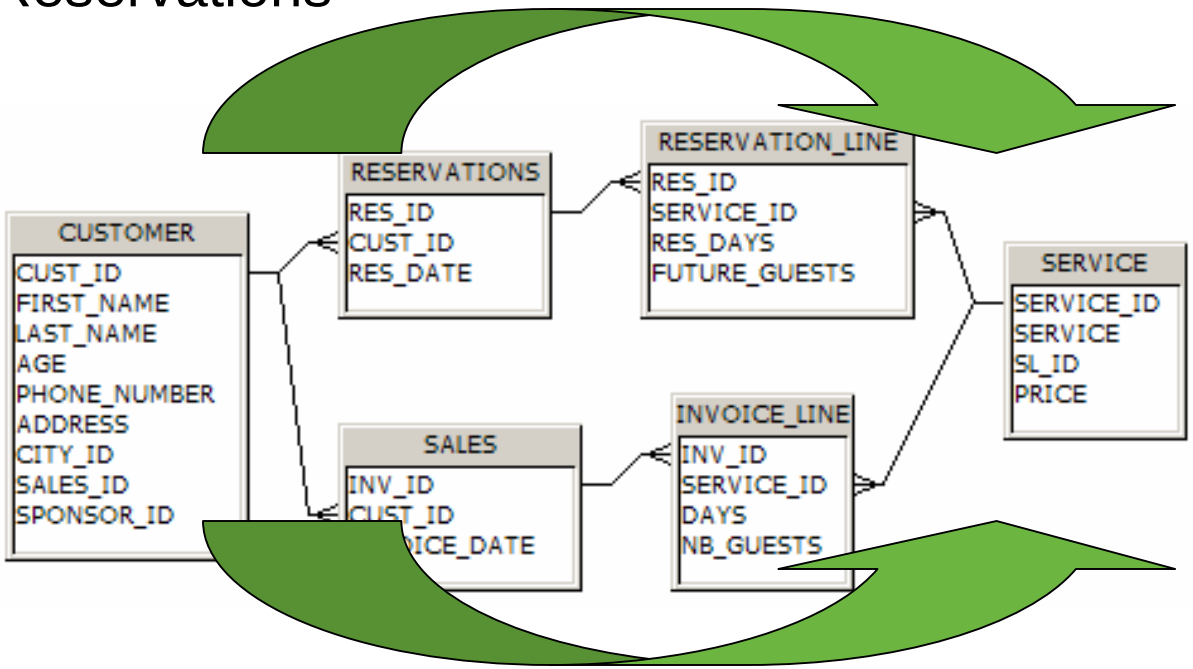
Contexts

- Contexts are used when multiple paths exist
- Two paths exist in this universe: Invoices and Reservations



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Alias Features

- Aliases are simple to create and maintain
- Each alias requires the creation of separate objects
  - Customer Country
  - Resort Country
- Each alias requires its own joins
- Once created no further maintenance is required
- Aliases eliminate (break) loops

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Context Features

- Contexts are much more complex to create and maintain
- Every join must exist in at least one context
  - Integrity check reports isolated joins
  - Universe maintenance becomes more complex
- Loops are not eliminated
  - Two (or more) query paths are identified
- Contexts can also be used to solve other query issues
  - Chasm traps

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Solving the Time Slice Challenge

- Measures sliced by time
  - Period to Date, Quarter to Date, Year to Date
  - Full Period, Full Quarter, Full Year
  - Current Year, Prior Year
- Each time interval has a different date range
  - Requires a different set of conditions
  - Multiple merged data providers

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Multiple Data Providers

- Users can create multiple data providers and merge the result sets
  - Repetitive – users have to do the same task on every report
  - Complex – users have to understand reason for the process
- Can we force the generation of more than one SQL statement from a single query?
- How can we make this process easier for our users?

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Contexts… Not Just For Loops

- Universe contexts can be used to solve
  - Join loops
  - Chasm traps
- Contexts force the generation of separate SQL statements

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Business Requirement

- Multiple time-sliced measures on every report
- Users can select calendar type during refresh
  - Monthly
  - Fiscal
- Process should be transparent
- Process should be efficient

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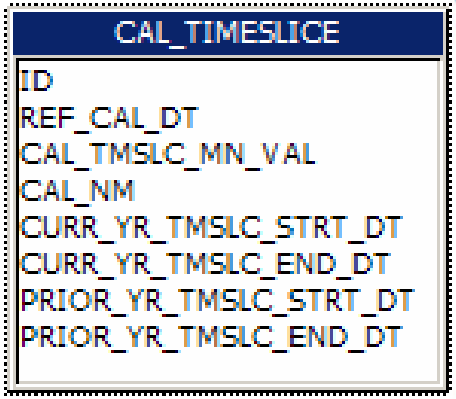
Time Slice Calendar Structure

- This table drives the time slice process

ref_cal_dt	Calendar date
cal_tmslc_mn_val	Time slice name
cal_nm	Calendar (Monthly or Fiscal)
curr_yr_tmslc_strt_dt	CY time slice start date
curr_yr_tmslc_end_dt	CY time slice end date
prior_yr_tmslc_strt_dt	PY time slice start date
prior_yr_tmslc_end_dt	PY time slice end date



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Time Slice Calendar Implementation

- Create an alias for each different time slice and year
  - Period, Quarter, and Year to Date
  - Full Period, Quarter, and Year
  - Current Year, Prior Year
- Create a context that identifies each path
  - 12 Contexts required for this example
- Context count
  - Time Slice * Year Tag * Fact Table
  - 6 * 2 * 1 = 12

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Demonstration Designer Aliases + Contexts

Context Configuration

- Frequently quoted rule:
  - “One context for each fact table”
- This scenario
  - Only one fact table
  - Zero loops, zero chasm traps, zero fan traps
- Why contexts in this case?
  - To facilitate the query process by providing a means to force separate query paths
- Why not fact table aliases + contexts?
  - The calendar is what drives the separation, not the fact
  - Conditions are date-based using calendar data

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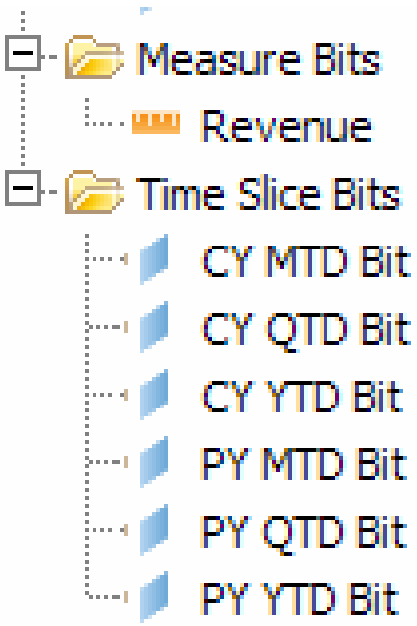
Creating Objects

- Create a special class in Designer (optional)
- Create an object that references each time-slice alias
- Use this object as a “pointer” to select that context
- Create base object for each desired measure with no aggregate function (optional)
- These objects are hidden from users



Demonstration Object Syntax

Creating Measures

- Time slice measures become a simple process
- Combination of measure bit + time slice bit

Select:

```
sum(@Select(Measure Bits\Revenue)) * @Select(Time Slice Bits\CY MTD Bit)
```

- Sum(@Select(Measure)) * @Select(Time Slice Bit)
- Actual SQL

```
sum(INVOICE_LINE.DAYS * INVOICE_LINE.NB_GUESTS * SERVICE.PRICE) * 1
```

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Advantages of This Model

- Time slice bits prevent “table drops” during object edits
- Measure bits allow easy redefinition of measure source
- What about maintenance?
  - Relatively easy to create new measure for existing time slices
  - More difficult to create new time slices for existing measures
- What about the query process?
  - Everything is automatic
  - A little extra work for the Designer has a big payoff for users

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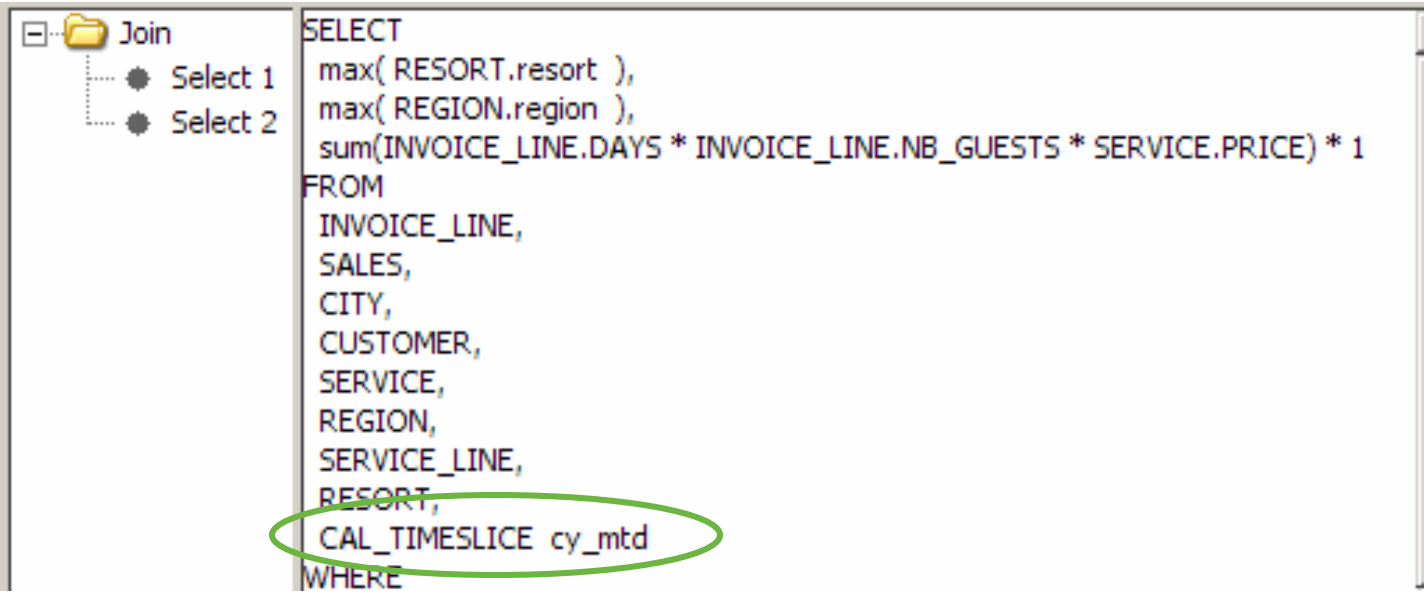
Demonstration Table Drops

Creating a Query

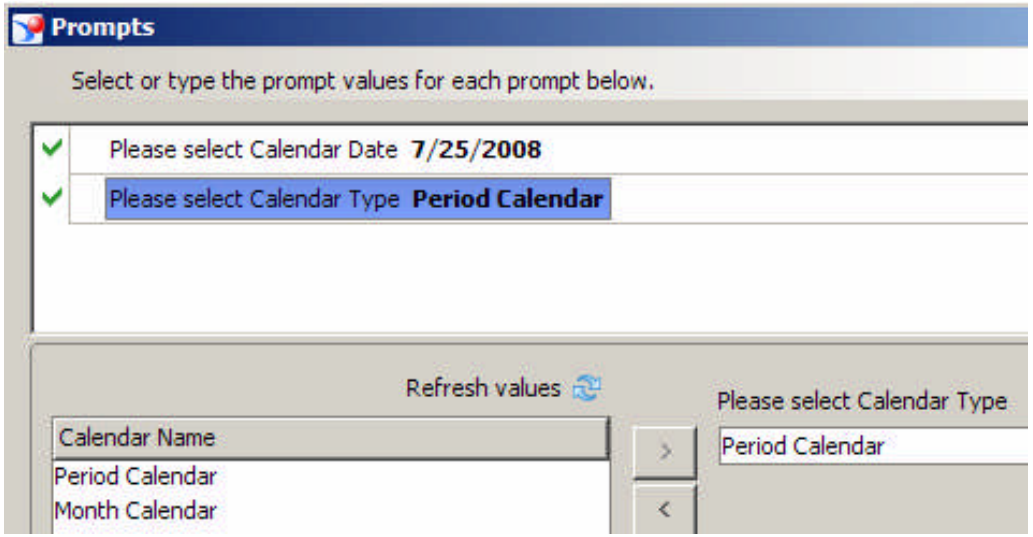
- Drag and drop all of the required objects
- Separate query statements are automatically generated



Demonstration Query Creation

Solving the Time Slice Challenge

- Solution
  - Create an alias for each time slice
  - Create a context for each time slice + fact table combination
  - Create “bits” to facilitate universe design
  - Additional calendar columns provide extra features



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Wrapping It Up

- Designer presents some new options for 3.0
  - Translation Manager
  - Delegated Measures
  - Nested Derived Tables
- There is still plenty of life left using “old” techniques

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Q&A

- Thank you for your time and attention today
- Questions?
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