

Don't Lose Control: Change Management Strategies for Universe Designers]

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[Presentation Abstract

- Once a universe reaches a certain size it can be really difficult to manage multiple change requests without messing something up. When something does get messed up, how do you figure out which version of the universe went wrong? One of the problems that designers have dealt with for years is the fact that there are limited ways to document a universe, and no official way to compare two different versions of a universe. In this presentation I will review several different development scenarios and discuss how to effectively manage those changes through to production.
- Session code 804

[About Dave

- Dedicated to BusinessObjects solutions since 1995
 - Consultant and trainer for fifteen years
 - Currently BI Solutions Architect for PepsiCo
 - Note: Content is my own and does not reflect my employer
- 15 consecutive years presenting at major BI conferences
 - United States, Europe, Australia
- Charter member of BOB
 - <http://busobj.forumtopics.com>
- I Blog! Dave's Adventures in Business Intelligence 
 - <http://www.dagira.com>
- SAP Mentor for 2009 – 2010 



[Demonstration Platform

- Demonstration universes
 - Summit Sporting Goods
 - Prestige Motors
- Software configuration
 - BusinessObjects Enterprise XI 3.1
 - Oracle 10g
- BusinessObjects toolset
 - Web Intelligence Rich Client
 - Universe Designer



Demonstration slides will be highlighted with this icon



Some demonstrations may be dropped depending on time

[Change... Is Constant

- Changes can impact in three ways
 - Additions Add
 - Alterations Edit
 - Removals Delete
- From a universe designer perspective I am concerned about
 - Database changes
 - Table changes
 - Downstream impact on reports
- Change questions
 - What changes can I prepare for?
 - What changes can I insulate my users from?
 - How can I detect and document changes?

[Agenda

- Database changes
 - Table changes – impact on universe design
 - Universe changes – impact on reports
 - Change analysis – versioning universes

[Definition: Database

- What is a database?
 - Oracle instance
 - SQL Server or Teradata server name
 - “The thing I am going to connect to”

The image shows two overlapping database connection dialog boxes. The background dialog box has the following fields and buttons:

- User name: ssg
- Password: ****
- Service: localhost
- Buttons: Test Connection, < Back

The foreground dialog box has the following fields and buttons:

- User name: (empty)
- Password: (empty)
- Data source name: club-webi
- Buttons: Test Connection, < Back, Next >, Cancel, Help

[Database Change Impact

- New database – no impact
 - A brand new database will not have an impact on existing code
- Altered database definition
 - New location? Handled in TNSNames, ODBC, or equivalent
 - New account? Update connection string in Designer
 - New password? Update connection string in Designer
- Deleted database
 - Universe and all related reports will stop working
 - Hopefully something this severe would be planned and prepared and not happen by accident
- What about pointing to a new database?
 - More on that in a moment...

[Schema Change Utility

- At PepsiCo we often switch schema names in Teradata
 - Teradata connections are by server
 - Universe tables are by schema (owner)
 - SCHEMA_OLD.TABLE becomes SCHEMA_NEW.TABLE
- Schema names need to be updated
 - Tables
 - Derived table SQL
 - Some complex join expressions
- Do not need to update
 - Alias names – are covered when base table repoints
- Use the SDK to update schema names in a universe



Demonstrate VBA schema change utility

[Database Change Overview

Add	No Impact	A new database does not impact existing code in any way
Edit	Minor Impact	Most database edits can be handled external to the universe (TNSNames, ODBC definitions) and therefore will not impact a universe
Delete	Major Impact	Unless a replacement is available (which would be treated as an Edit) then a deleted database obviously has a severe impact

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[Table Changes

- Table changes can include
 - New tables (Add)
 - Edited table (Edit)
 - New columns (Add)
 - Rename existing columns (Edit)
 - Remove existing columns (Delete)
 - Removed table (Delete)

[New Tables

- New tables normally would not have an impact
 - Do not require universe updates; they are simply ignored
 - Designer does not require me to download the full database catalog
- Exception
 - New tables are being added to solve an existing issue
 - In this case the new table(s) would have to be added to the universe

[Edited Tables – New Columns

- As with new tables normally this is not a problem
 - Designer is not a database design tool
 - Does not need my local table structures to be 100% up to date
- Exception
 - If the new columns were added to solve a problem

[Edited Tables – Edited Columns

- Changing column type definition
 - Could have an impact
 - Character to Numeric
 - Character to Date
 - Or it might not
 - Number(10) to Number(12)
 - Number(10) to Decimal(14,2)
 - Varchar(60) to Varchar(30)
- How can I tell?
 - Will it change the SQL code?
 - SQL is not a typed language

```
SELECT
    SSG.CUSTOMER.NAME,
    SSG.CUSTOMER.ADDRESS,
    SSG.CUSTOMER.CITY,
    SSG.CUSTOMER.STATE,
    SSG.CUSTOMER.CREDITLIMIT
FROM
    SSG.CUSTOMER
```

[Edited Tables – Edited Columns

- Changing column name
 - Will have an impact if the column is used
- How can I tell?
 - Do a Find for the column name in the universe
 - Tip: Find can search both sides of the universe; make sure you click the right area
 - Alternative: Extract universe definition and search
 - Options include PDF, TXT, and XLS
- There is no automatic update for this change
 - Requires manual intervention by the universe designer

 Demonstrate impact of changed column name on universe joins (Join Test unv)

[Edited Tables – Deleted Columns

- Where the columns used?
 - If so, what is the replacement?
 - If not, no impact
- How to determine impact?
 - Determine if column is used
 - Determine if there is a replacement (treat as Edit)
- Deleted column strategies for user-facing elements
 - Leave object in place
 - Change name to Object Name – Obsolete
 - Change SQL to 'Obsolete'

[Deleted Tables

- Understand why the table is being deleted
 - Is there a replacement? Treat as Edit
 - No replacement? Investigate impact on universe
 - Use List Mode to check for table location
 - See “Center on Selection”
 - Use Find on the structure panel
 - Helps to check aliases
- There is no automatic update for this change
 - Requires manual intervention by the universe designer
 - Right-click “View associated objects”
 - Warning: above does NOT include Aggregate Aware objects
 - Must remember to check objects and conditions separately
 - Need a better way to determine where a table is used

[Table Change Overview

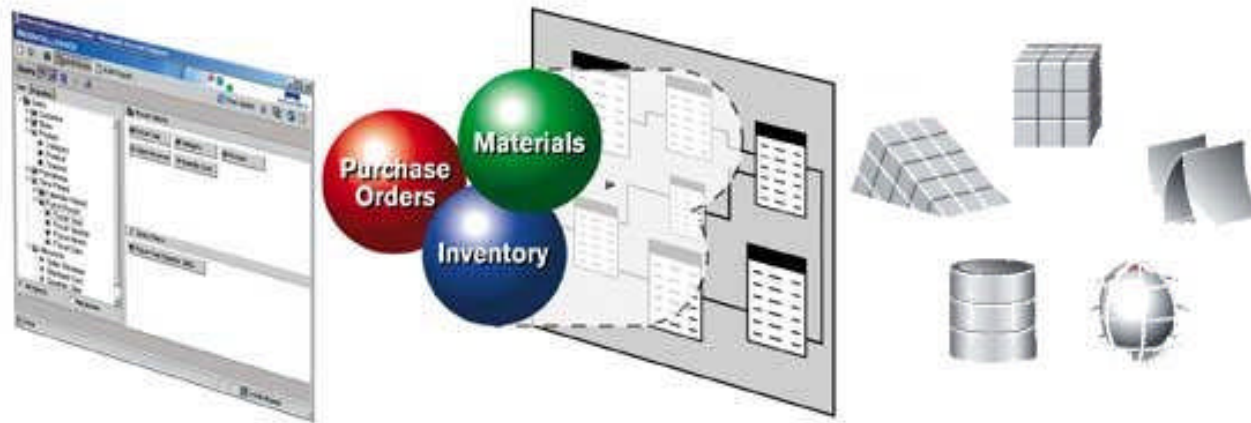
Add		No Impact	A new table does not impact existing code in any way
Edit	Add Column	No Impact	New columns do not require me to update my universe design
	Edit Column	Medium Impact	If the column is used I need to refresh structure and update column definitions
	Delete Column	Medium Impact	Impact is high if column is used Impact is low if column is not used
Delete		Major Impact	Unless a replacement is available (which would be treated as an Edit) then a deleted table can have a severe impact

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[Universe Change Source

- The universe designer sits between the business user and the database team



- Changes can come from either direction
 - Users request functional changes
 - Database team makes changes due to requirements or performance

[Sample User Requests

- Renaming an object to better reflect its use
- Rearranging objects within a class
- Altering the SQL code of an object based on a new business definition
- Adding new objects for additional functionality
 - Combine last name + first name to full name
- Changing join logic to allow for optional results (outer joins)
 - Might not specifically request “outer join” just the functionality
- Adding new condition objects to facilitate adhoc queries
- Creating objects designed to facilitate scheduled reports
 - Date-based scheduling objects
- Hiding objects from certain types of business users

[Sample Database Requests

- Renaming tables to conform to standards
- Editing joins to include additional columns for redesigned keys
- Forcing prompts on certain relationships to restrict volume of data returned
- Utilizing new database fields for performance reasons
 - Same period logic with calendar tables versus same period bit
- Redesigned database due to schema change (star to snowflake)

[Report Impact – New Objects

- As with most “new” events there is no direct impact
 - Objects do not immediately show up in reports
 - Have no impact on the way reports currently execute

[Report Impact – Edited Objects

- Objects are created with a specific OBJECT_ID
- This allows for many changes to be made without impacting reports
 - Renamed objects retain the same OBJECT_ID
 - Moved objects – within or outside of class – retain the same ID
 - Reports reference objects by ID, not name
- Exception: When moving a report from one universe to another objects are matched by name
 - Desktop Intelligence cannot move if an equivalent object is not found
 - Web Intelligence allows a report developer to remap the object



Demonstrate preservation of Object ID on various object edits

[Report Impact – Deleted Objects

- “Some obsolete objects have been removed from the query”
- To avoid this, rename the object “Obsolete” and create a token value
 - Character objects become “ ” or null
 - Numeric objects become 0 or null
 - Date objects become null

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[Documenting Universe Changes

- A universe can change based on user requirements or database updates
- Many times I have been asked questions like
 - What is different between these two universes?
 - I need to document changes made in “break fix” to apply them to development
 - What are you getting ready to move into production?

[Visual Basic for Applications (VBA) Designer SDK

- Designer cannot be a host for VBA
- Use Microsoft Excel to host the code and drive Designer
- Capture image of “before” and “after” universe
- Efficient and effective compare algorithm
 - Driven by object ID values where possible
 - Quickly and easily identify Adds, Edits, and Deletes



Demonstrate VBA Universe Compare Tool

[What About Life Cycle Manager (LCM)?

- Change management has been a weak point for universe and report developers
 - No true source code repository
 - No true impact analysis (relied on Auditor reports)
 - No true versioning
- Life Cycle Manager
 - Introduced in XI 3.0
- Tools presented today can be used by a stand-alone universe designer
 - Can extend but not replace LCM
- Other third party tools are available (not reviewed today)

[Key Points From Today

- Change is inevitable but it can be dealt with
- A universe designer can isolate a business user from most database changes
- With careful execution a universe designer can prevent report rework due to universe changes
- Tools are available to help a universe designer understand what has changed between various universe versions

[Thank You For Your Time

- Session Title: Don't Lose Control: Change Management Strategies for Universe Designers
- Session ID: 804
- Places to find me
 - BI Blog: <http://www.dagira.com>
 - BOB: <http://busobj.forumtopics.com>
 - SCN: <http://forums.sdn.sap.com/index.jspa>
 - Twitter: http://twitter.com/dagira_tweets

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