



## BUSINESS INTELLIGENCE FOR A PASSIONATE COMMUNITY

# [ Delivering Personalized and Secure Business Intelligence

Dallas Marks - Session 5010

## [ Breakout Description

Do you need to tailor semantic layer security to specific users or groups within your organization? Attend this session to learn about security profiles in the new Information Design Tool in SAP BusinessObjects Business Intelligence 4.0 (BI4.0). Understand how security profiles can control objects, rows, query types, and connections. See live demonstrations of each type of restriction and the effect they have on end users' interactive experience.

This presentation is an updated version of “Secure Universes Using Restriction Sets”, presented at BusinessObjects Insight 2007 in Orlando, Florida. The original presentation covered XI R2 (and therefore XI 3.0/3.1 universe security) and is available for download at <http://www.dallasmarks.org/blog/presentations>.

## [ About Dallas Marks

- Dallas is an SAP Certified Application Associate and authorized trainer for Web Intelligence, Information Design Tool, Universe Design Tool, Dashboards (formerly Xcelsius), and SAP BusinessObjects Business Intelligence administration. A seasoned consultant and speaker, Dallas has worked with SAP BusinessObjects tools since 2003 and presented at the North American conference each year since 2006.
- Dallas has implemented SAP BusinessObjects solutions for a number of industries, including retail, energy, health care, and manufacturing. He holds a master's degree in Computer Engineering from the University of Cincinnati.
- Dallas blogs about various business intelligence topics at <http://www.dallasmarks.org/>. You can follow him on Twitter at [@dallasmarks](https://twitter.com/dallasmarks).

# [ Agenda

- The Information Design Tool
- The Need for Universe Security
- Introducing Security Profiles
- Creating Security Profiles
- Demonstration
- Next Steps
- Your Questions



Delivering Secure and Personalized Business Intelligence

# THE INFORMATION DESIGN TOOL

# [ Disclaimer



*“I'm just a simple man  
trying to make my  
way in the universe.”  
—Jango Fett*

# [ Learn more about Information Design Tool



- **Building a Universe with the SAP BusinessObjects BI 4.0 Information Design Tool**  
Pierpaolo Vezzosi | Session 5007  
Tuesday, October 11, 2011 10:45 AM - 11:45 AM
- **The Road to Universe 4.0: Migrating from Universes to Univexes**  
Maria Silva | Session 5005  
Monday, October 10, 2011 4:00 PM - 5:00 PM
- **Top 10 Likes and Dislikes in the SAP BusinessObjects 4.0 Information Design Tool**  
Cindi Howson | Session 5006  
Tuesday, October 11, 2011 9:30 AM - 10:30 AM
- **The BusinessObjects Universe: An Update From the SAP BusinessObjects Semantic Layer Influence Council**  
Derek P Loranca, Aetna, Pierpaolo Vezzosi | Session 1205  
Monday, October 10, 2011 4:00 PM - 5:00 PM

This list represents only a portion of semantic layer breakout sessions at the ASUG SAP BusinessObjects User Group Conference. Please check the official conference schedule for a full listing.

# [ What is a legacy UNV Universe?



\*.unv

Connection

# What is a traditional UNV Universe?

**Business Layer**

**Data Foundation**

Created with the Universe Design Tool, formerly known as “Universe Designer” or simply “Designer”.

Tables

WeightUnitMeasureCode	
SizeUnitMeasureCode	
EnglishProductName	
SpanishProductName	
FrenchProductName	
StandardCost	
FinishedGoodsFlag	
Color	
SafetyStockLevel	
ReorderPoint	
ListPrice	
Size	
SizeRange	
Weight	
DaysToManufacture	
ProductLine	
DealerPrice	
Class	
Style	

FactResellersSales

ProductKey	
OrderDateKey	
DueDateKey	
ShipDateKey	
ResellerKey	
EmployeeKey	
PromotionKey	
CurrencyKey	
SalesTerritoryKey	
SalesOrderNumber	
SalesOrderLineNumber	
RevisionNumber	

DimDateOrder (DimTime)

TimeKey	
---------	--

DimDateDue (DimTime)

TimeKey	
---------	--

DimDateShip (DimTime)

TimeKey	
---------	--

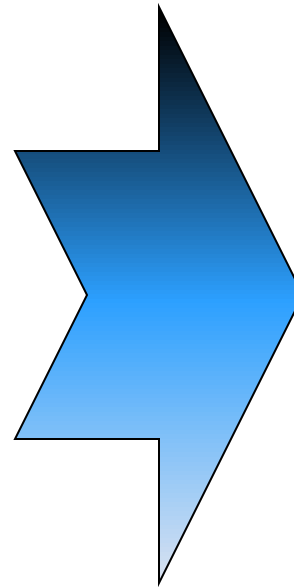
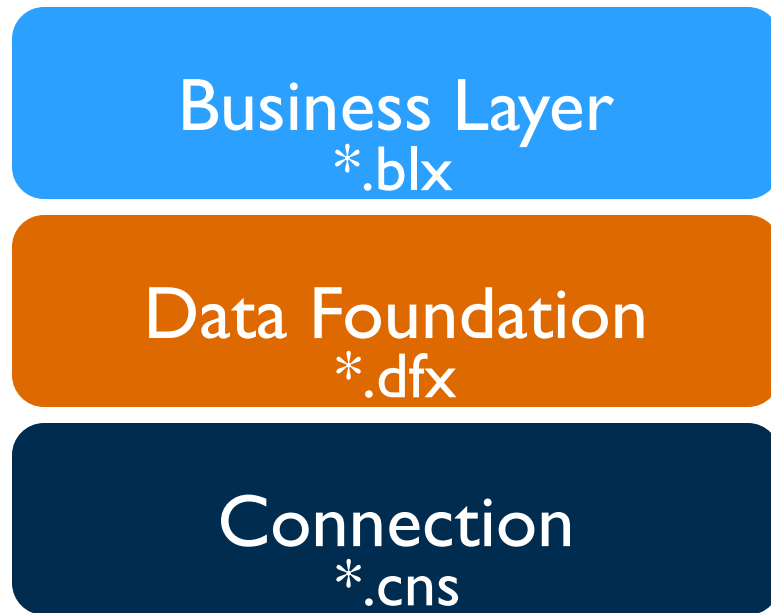
DimReseller

ResellerKey	
GeographyKey	
ResellerAlternateKey	

ClassType

ResellerName	
--------------	--

# [ What is a UNX Universe?

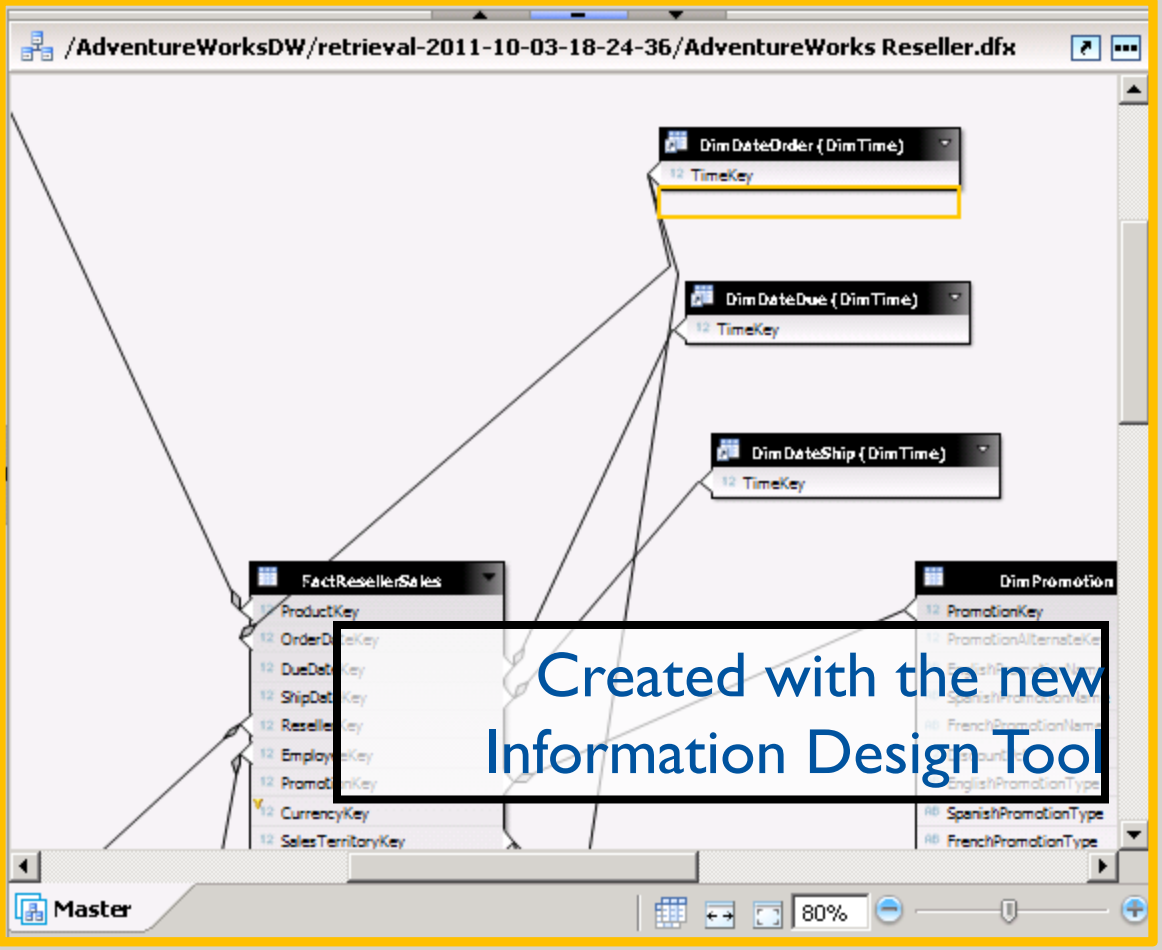


The term “Common Semantic Layer” is also used to describe the new universe format.

# What is a UNX Universe?

Data Foundation

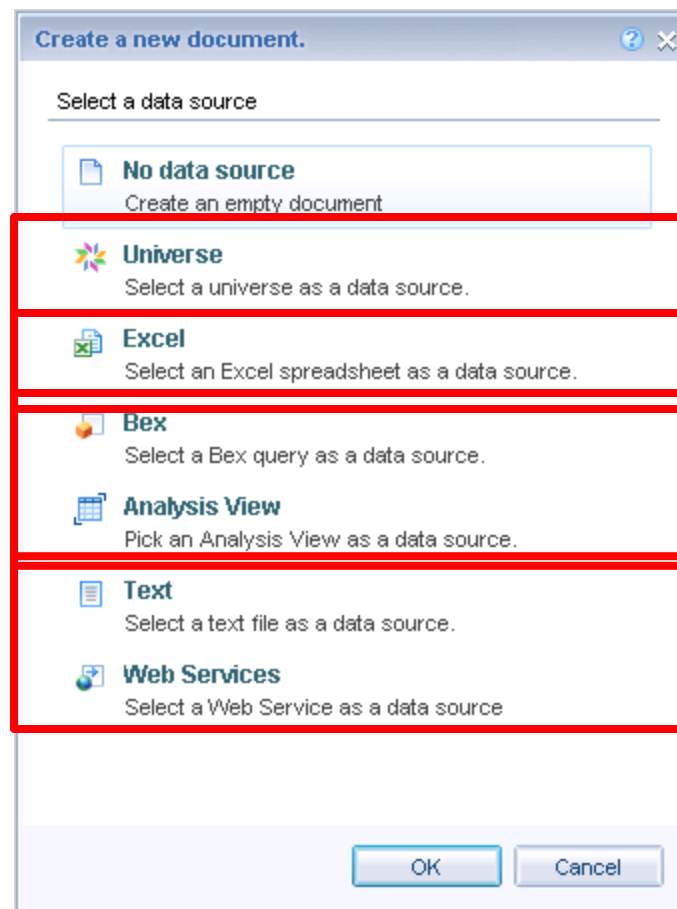
Business Layer



Created with the new Information Design Tool

# [ Web Intelligence 4.0 Query Methods

- Web Intelligence now allows Bex (SAP BW) and Analysis Views to be queried directly without universe.
- Web Intelligence Desktop edition (shown) adds support for Excel, Text and Web Services
- This presentation focuses on securing universes created with the new Information Design Tool 4.0





Delivering Secure and Personalized Business Intelligence

# **THE NEED FOR UNIVERSE SECURITY**

# [Two Methods for Securing Universes



- Restrict access to entire universe by setting universe rights in the Central Management Console (CMC)
- Create various forced and optional restrictions within Information Design Tool
  - Forced
    - Object restrictions
    - Self-restricting joins
    - Inferred extra tables
  - Optional
    - Filter objects

## [ Introducing Security Profiles

Need to secure business critical data based on a user's role in the organization, but standard universe design solutions affect all users ***unilaterally...***



...a different solution is required to apply security ***conditionally*** to specific users and groups:

***security profiles.***

## [ Introducing Security Profiles

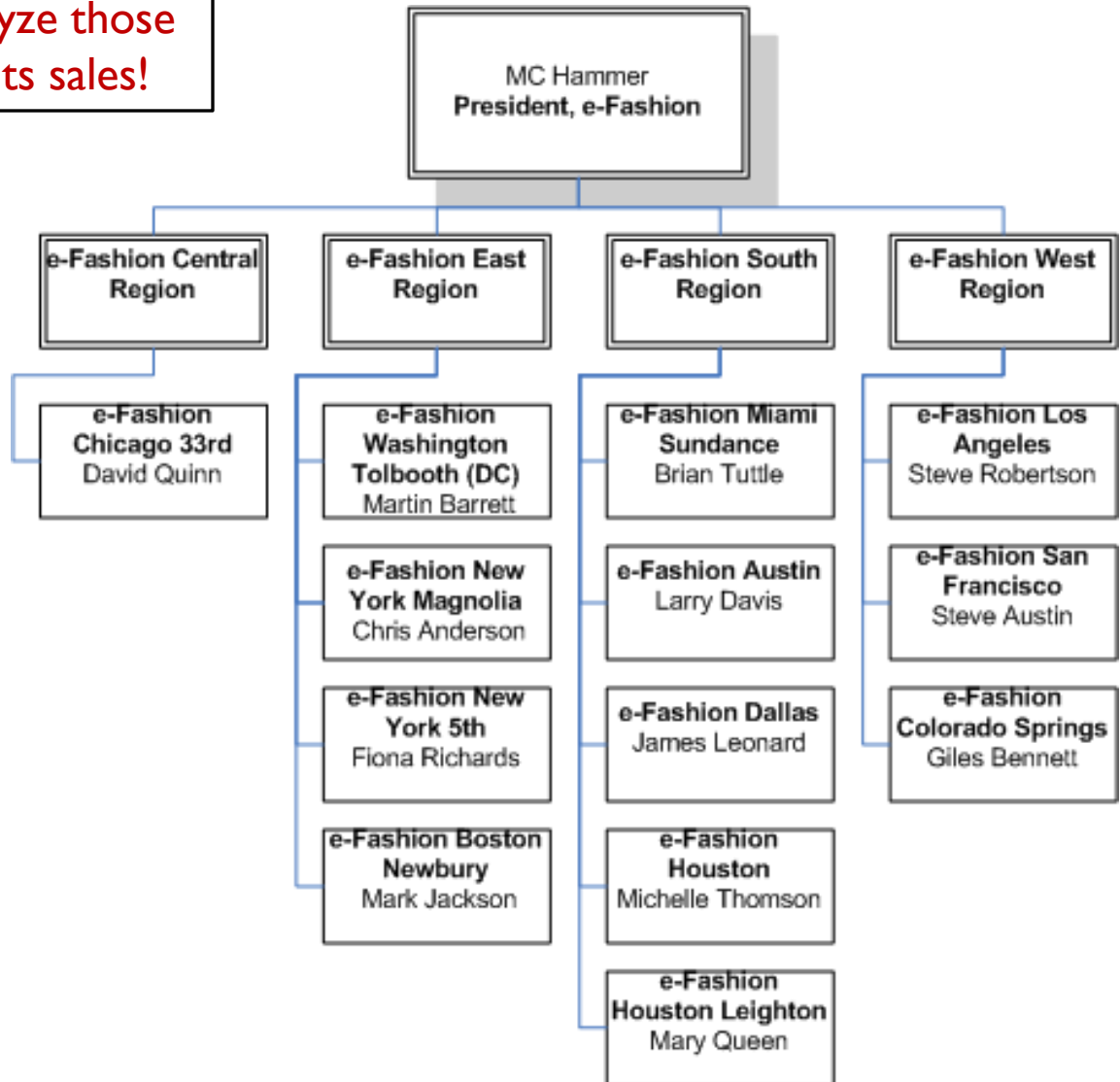
Database specific techniques such as Teradata Query Banding and Oracle Virtual Private Databases can be used but are beyond the scope of this discussion.



Security Profiles are ideal for organizations that use multiple database platforms and need a single, integrated approach to data security

# Securing and Personalizing eFashion

Gotta analyze those party pants sales!





Delivering Secure and Personalized Business Intelligence

# **INTRODUCING SECURITY PROFILES**

# [ What is a Security Profile?

- A *security profile* is a group of security settings that apply to a universe published in the repository.
- Similar features are available in the Universe Design Tool for traditional universes (UNV), known as access restrictions or restriction sets.
- Data Security Profiles have security settings defined on objects in the data foundation and on data connections.
- Business Security Profiles have security settings defined on objects in the business layer.

# [ What can be restricted in traditional UNV universes?

Type of restriction	Description
Connection	Override the default universe connection with an alternate connection
Query controls	Limit the size of the result set and query execution time
SQL generation controls	Control how SQL is generated by user query
Row access	Row-level security – force restrictions into the WHERE clause of inferred SQL
Alternative table access	Replace a table referenced in the universe with another table in the database
Object access	Column-level security

# [ What can be restricted in new UNX universes?

## Data Foundation Restrictions

Type of restriction	Description
Connection	Override the default universe connection with an alternate connection
Query controls	Limit the size of the result set and query execution time
SQL generation controls	Control how SQL is generated by user query
Row access	Row-level security – force restrictions into the WHERE clause of inferred SQL
Alternative table access	Replace a table referenced in the universe with another table in the database

Similar restrictions exist in Universe Design Tool

# [ What can be restricted in new UNX universes?

## Business Layer Restrictions

Type of restriction	Description
Create Query	Defines the universe views* and business layer objects** available to the user in the query panel.
Display Data	Grants or denies access to the data retrieved by objects in the business layer when the user runs a query.*
Filters	Defines filters using objects in the business layer.*

\* New feature of BI 4.0

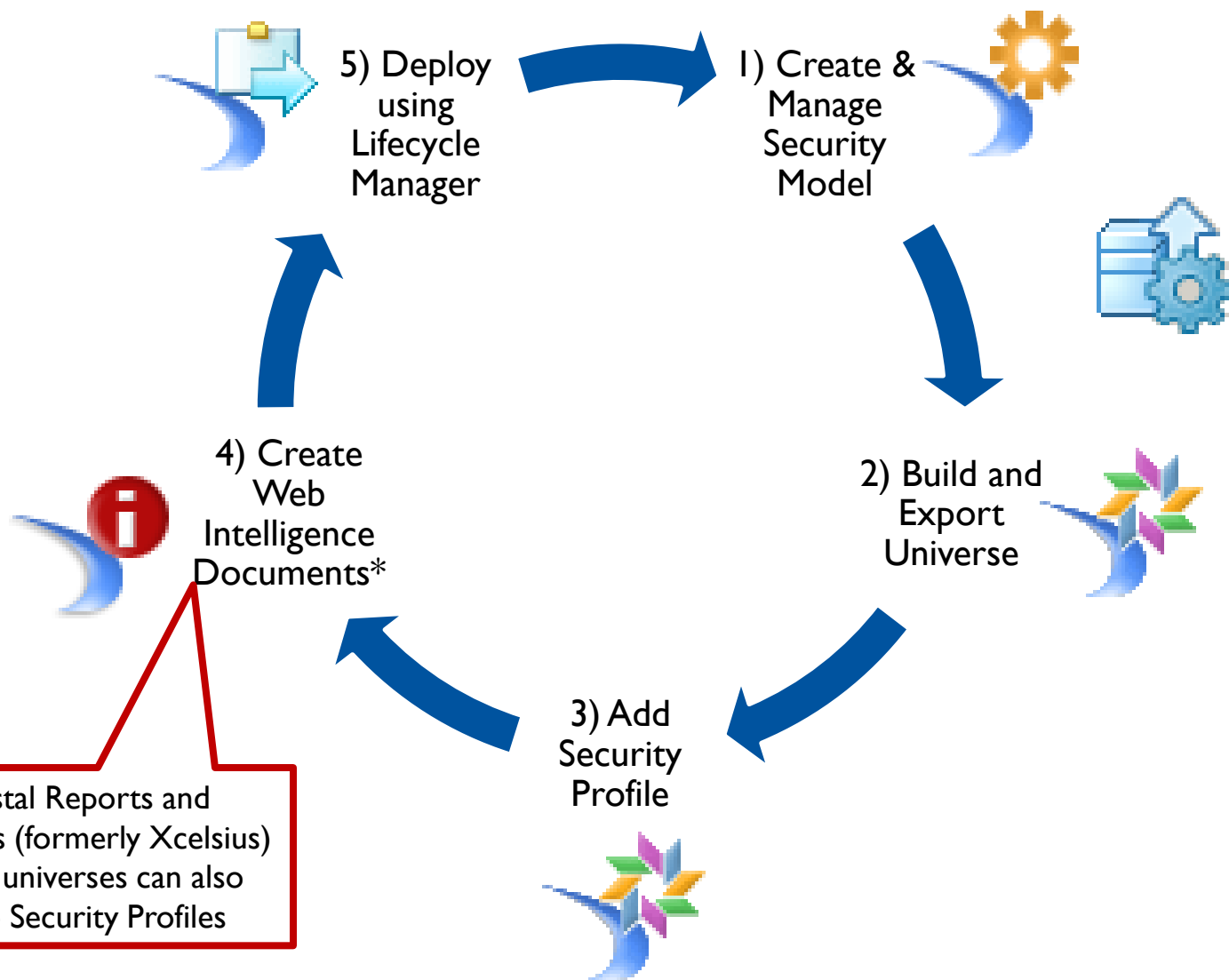
\*\* Similar to object restrictions in Universe Design Tool



Delivering Secure and Personalized Business Intelligence

# **CREATING SECURITY PROFILES**

# [ Securing Universes – Design Process



\* Crystal Reports and Dashboards (formerly Xcelsius) based on universes can also leverage Security Profiles

# [ Importing Secure Universes from XI R2 or XI 3.x

Import XI R2 BIAR file into BI 4.0  
using Upgrade Management Tool



Import UNV into  
Information Design Tool



Convert UNV to UNX using  
Information Design Tool

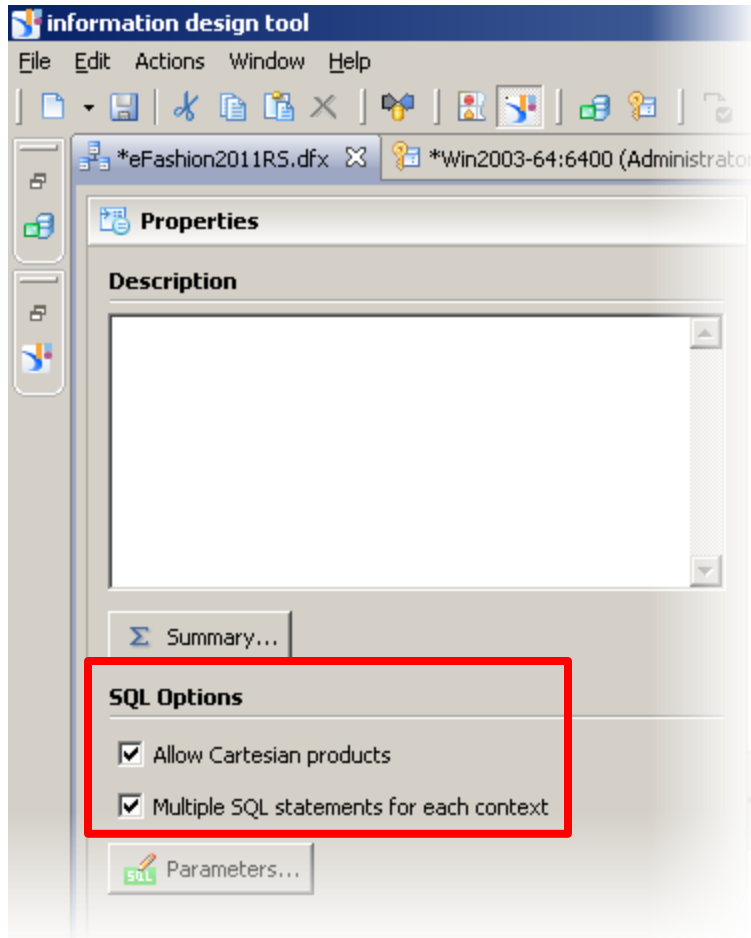


Validate Converted Security Profile



Test and Deploy

# [ Default Universe Parameters – Data Foundation Layer

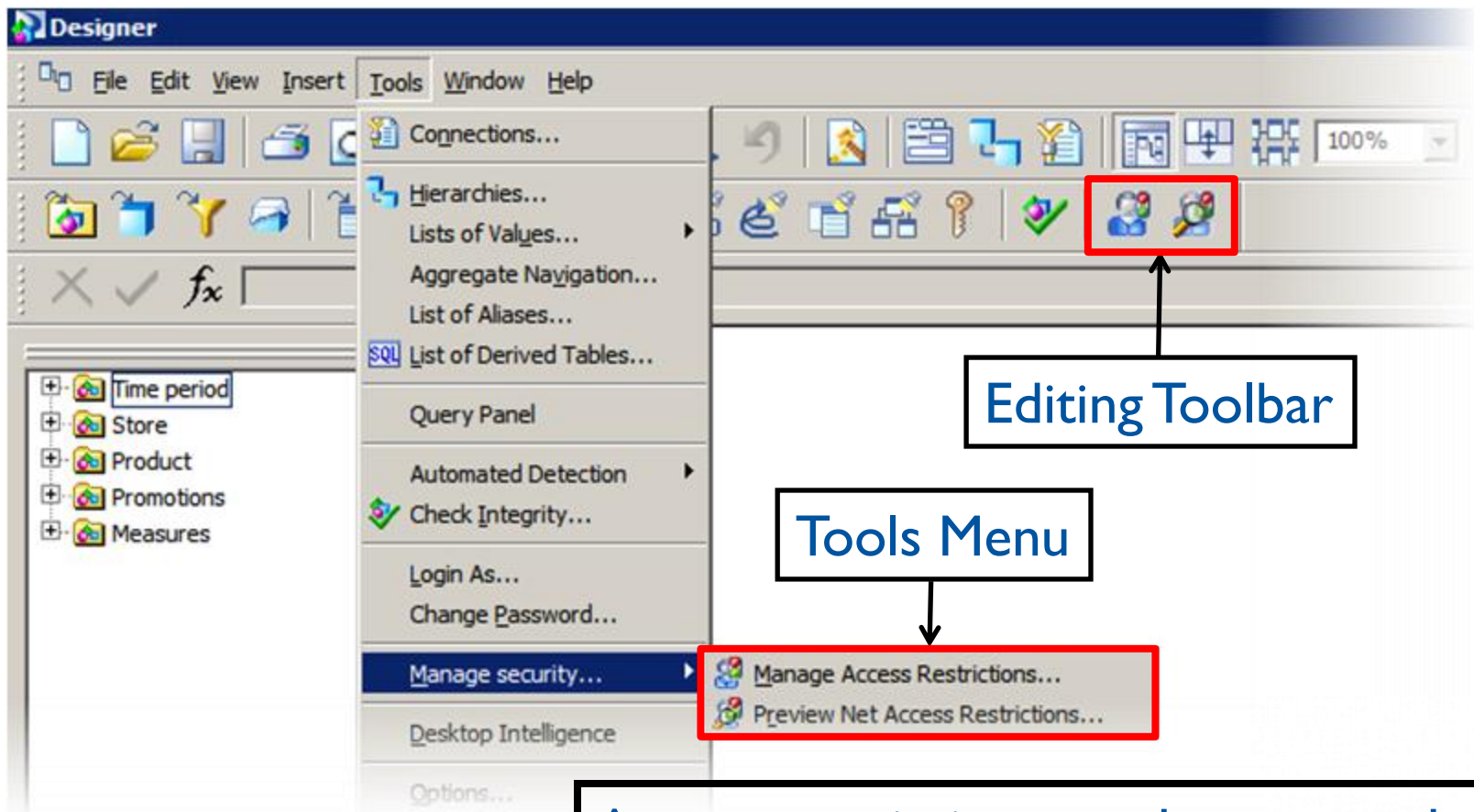


# Default Universe Parameters – Business Layer

The screenshot displays the 'information design tool' interface. On the left, the 'Business Layer' tree shows a hierarchy starting with 'eFashion2011RS', which includes folders for 'Time period', 'Store', 'Product', 'Promotions', and 'Measures'. The 'Time period' folder is expanded to show 'Year', 'Quarter', 'Month', 'Week', 'Holiday (y/n)', 'Last year', 'This year', 'Christmas period', and 'Holiday period'. On the right, the 'Universe Parameters' dialog is open for 'eFashion2011RS'. The 'Properties' tab is selected, showing the following settings:

- Query Limits:**
  - Limit size of result set to 90000 rows
  - Warn if cost estimate exceeds 1 minutes
  - Limit execution time to 5 minutes
- Query Options:**
  - Allow use of subqueries
  - Allow complex operands in Query Panel
  - Allow use of union, intersect and minus operators
  - Multiple SQL statements for each measure

# [ Access Restrictions in Universe Design Tool (UNV)



Access restrictions can be accessed from either the **tools** menu or the **editing** toolbar

# [Access Restrictions in Information Design Tool (UNIX)

The screenshot displays the Information Design Tool interface. The 'Window' menu is open, and the 'Security Editor' option is highlighted with a red box. In the toolbar, the Security Editor icon (a key) is also highlighted with a red box. The main workspace shows the 'Universes / Profiles' tree on the left, the 'Users / Groups' list on the right, and the 'Data Security Profile Options' panel at the bottom. A text box is overlaid on the center of the screen.

**Access restrictions available via Security Editor on Window menu or editing toolbar**

# [ Using the Security Editor – Step 1 of 4

The screenshot displays the 'information design tool' interface, specifically the 'Security Editor' window. The 'Security Editor' menu is open, showing options like 'Local Projects', 'Repository Resources', 'Project Synchronization', and 'Check Integrity Problems'. The 'Universes / Profiles' tree view is highlighted with a red box, showing a hierarchy of universes: 'Insight 2007', 'Report Conversion Tool Uni', 'SBOUC 2011', and 'webi universes'. A red callout bubble points to this tree view with the text 'I. Select Universe and create Security Profiles'. The 'Users / Groups' list on the right shows various user groups, including 'Administrators', 'Cryptographic Officers', and several 'eFashion 2007' related groups. The bottom right section contains 'Data Security Profile Options' and 'Business Security Profile Options' with dropdown menus for 'Control and SQL Settings Aggregation', 'Row Restriction Aggregation', 'Create Query / Display Data Aggregation', and 'Filters Aggregation'.

# [Using the Security Editor – Step 2 of 4

The screenshot shows the 'information design tool' interface. The 'Security Editor' menu is open, and the 'Users / Groups' pane is active. The 'Assigned Users' table is empty, and the list of groups includes:

- Administrators
- Cryptographic Officers
- Data Federation Administrat...
- eFashion 2007
- eFashion 2007 Corporate Of...
- eFashion 2007 Managers
- eFashion 2007 Managers Ce...
- eFashion 2007 Managers Ea...

**2. Assign Users or Groups**

# [Using the Security Editor – Step 3 of 4

**3. Adjust Options**

The screenshot shows the 'information design tool' interface. The 'Security Editor' menu is open, showing options like 'Local Projects', 'Repository Resources', 'Project Synchronization', 'Check Integrity Problems', 'Find/Replace...', 'Reset to Default Display', and 'Preferences...'. The 'Users / Groups' pane is active, displaying a list of users and groups. The 'Data Security Profile Options' section is highlighted, showing the following options:

- Data Security Profile Options
  - Control and SQL Settings Aggregation
  - Row Restriction Aggregation
  - Business Security Profile Options
    - Create Query / Display Data Aggregation
    - Filters Aggregation

# [Using the Security Editor – Step 4 of 4

The screenshot shows the 'information design tool' interface. The 'Security Editor' menu is open, and the 'Users / Groups' panel is active. A red callout box highlights the 'Users / Groups' tab in the bottom navigation bar and the 'Users / Groups' panel on the right. The 'Users / Groups' panel shows a list of users and groups, including Administrators, Cryptographic Officers, Data Federation Administrators, eFashion 2007, and various eFashion 2007 Managers. The 'Assigned Users' table is currently empty.

## 4. Test Specific Users and Groups

# Information Design Tool - Security Editor

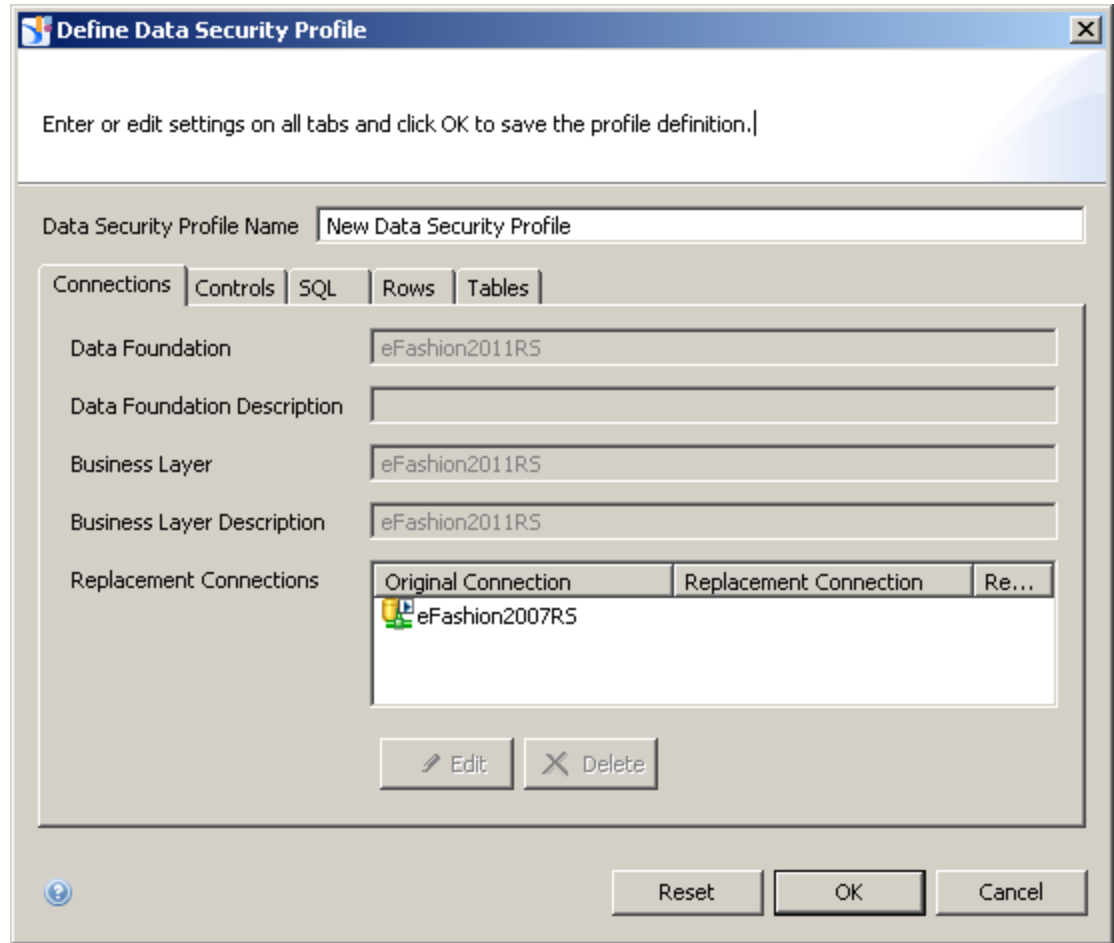
The screenshot displays the Security Editor interface for the Information Design Tool. The window title is "eFashion2011RS.blx \*eFashion2011RS.dfx Win2003-64:6400 (Administrator)".

The interface is divided into three main sections:

- Universes / Profiles:** A tree view on the left showing the hierarchy of universes. The selected universe is "eFashion2011RS.unyx". A context menu is open over this selection, with the following options:
  - Insert Data Security Profile (highlighted in red)
  - Insert Business Security Profile (highlighted in red)
  - Change Data Security Profile Priority
  - Check Integrity
  - Run Query
- Users / Groups:** A central area with a table titled "Assigned Users" and "Description".
- User List:** A list of users and groups on the right, including:
  - Administrators
  - Cryptographic Officers
  - Data Federation Administrators
  - eFashion 2007
  - eFashion 2007 Corporate Office
  - eFashion 2007 Managers (highlighted)
  - eFashion 2007 Managers Central
  - eFashion 2007 Managers East
  - eFashion 2007 Managers South
  - eFashion 2007 Managers West
  - Everyone
  - Insight 2007
  - Insight 2007 A1
  - Insight 2007 A2
  - Insight 2007 A3
  - Insight 2007 B1
  - Insight 2007 No SQL
  - Monitoring Users
  - QaaWS Group Designer
  - Report Conversion Tool Users

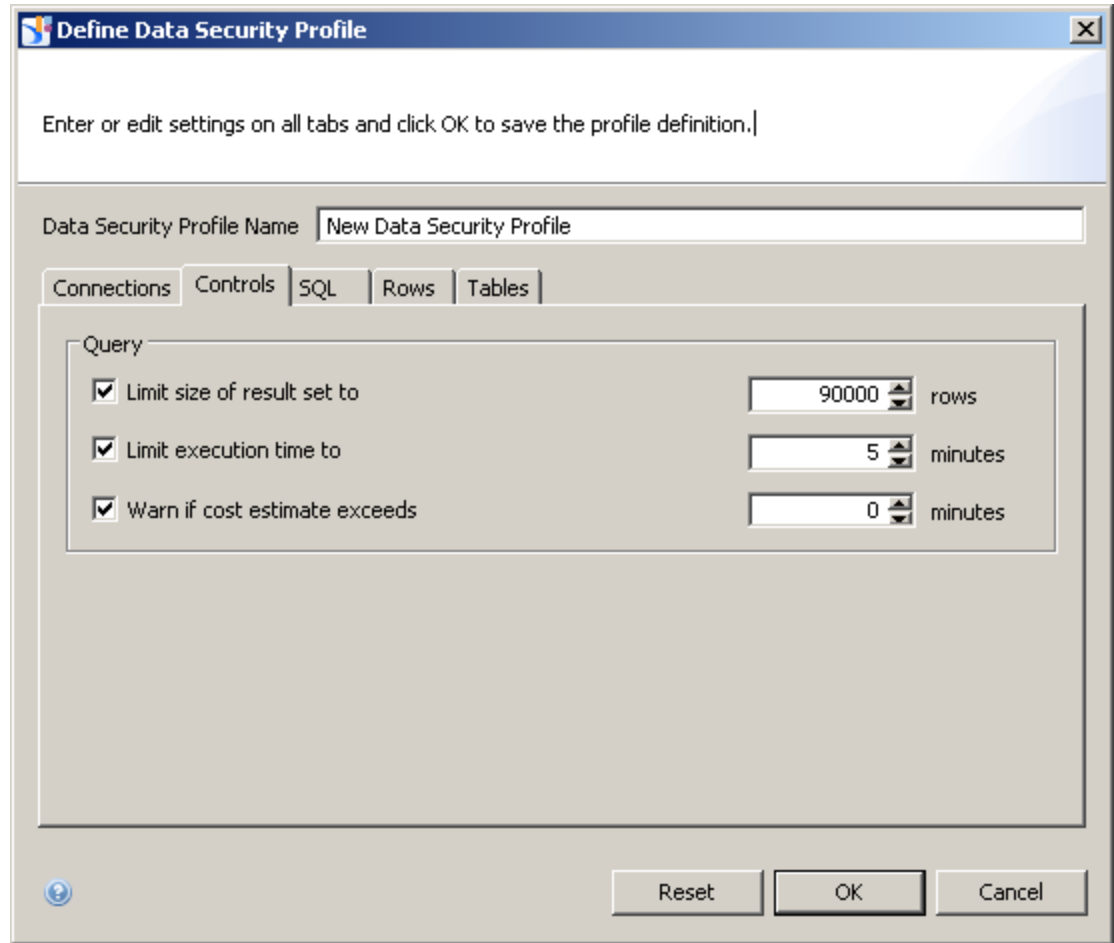
# [ Data Security Profile - Connections

- Replace default universe connection
- Use Case: default connection may point to production but Security Profile points UAT users to UAT connection.



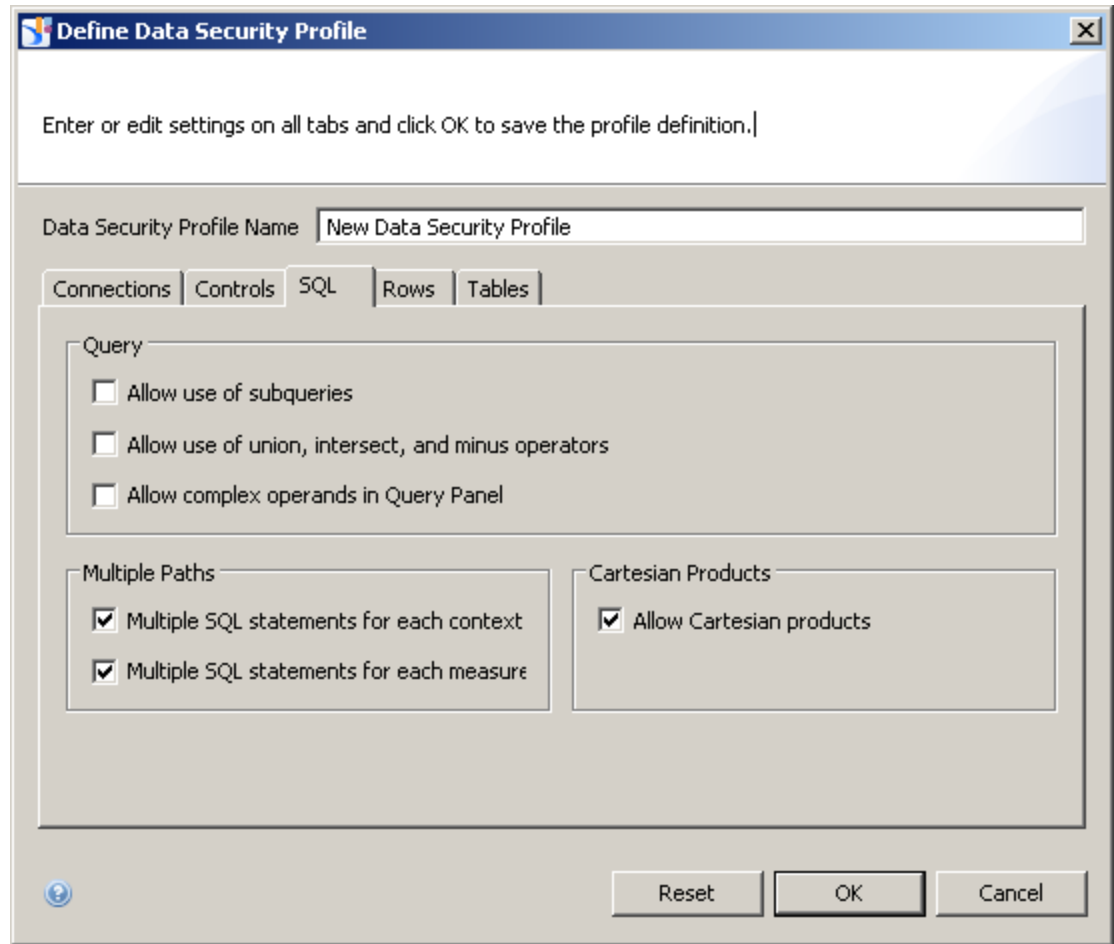
# [ Data Security Profile - Controls

- Limit number of rows or execution time
- Use Case: Conservative default settings for all users but more aggressive settings for power users



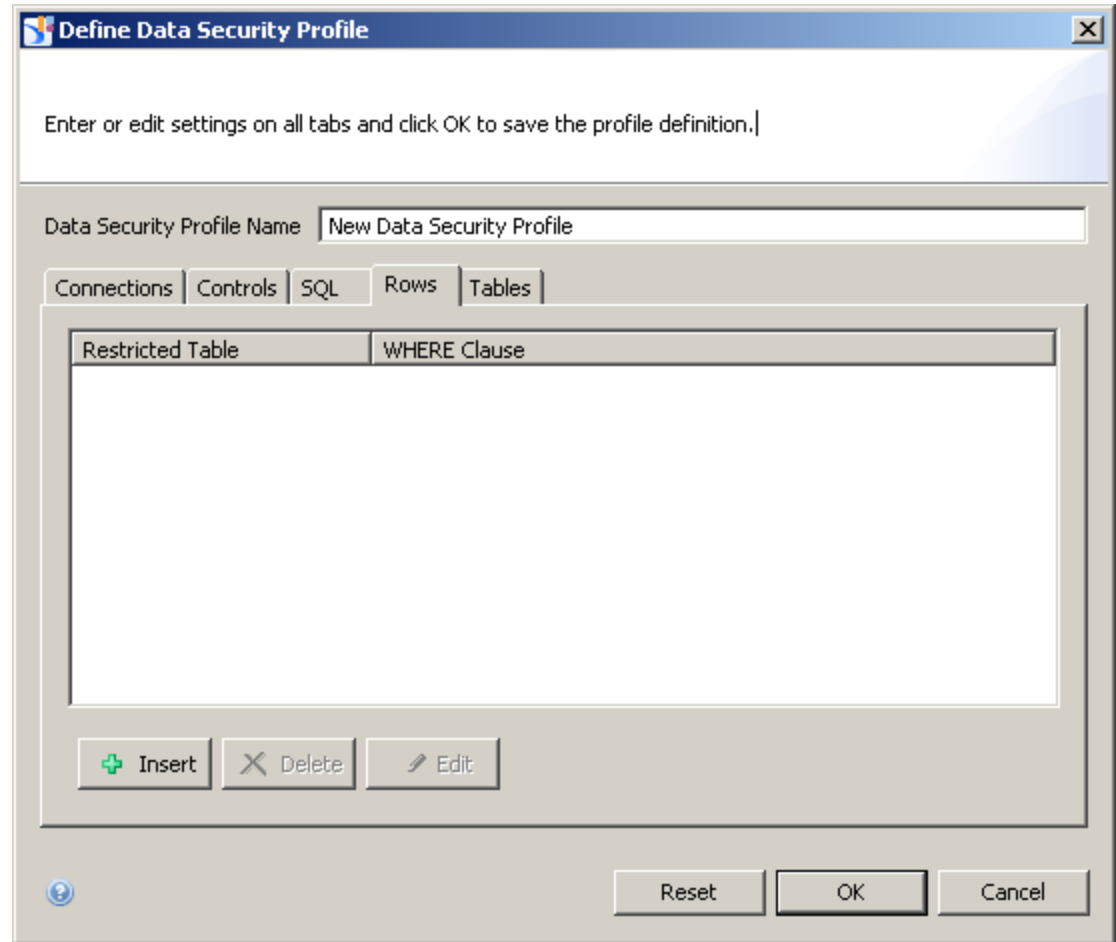
# [ Data Security Profile – SQL

- Control complexity of user queries
- Use case: Default settings may allow subqueries and combined queries but security profile limits casual business users



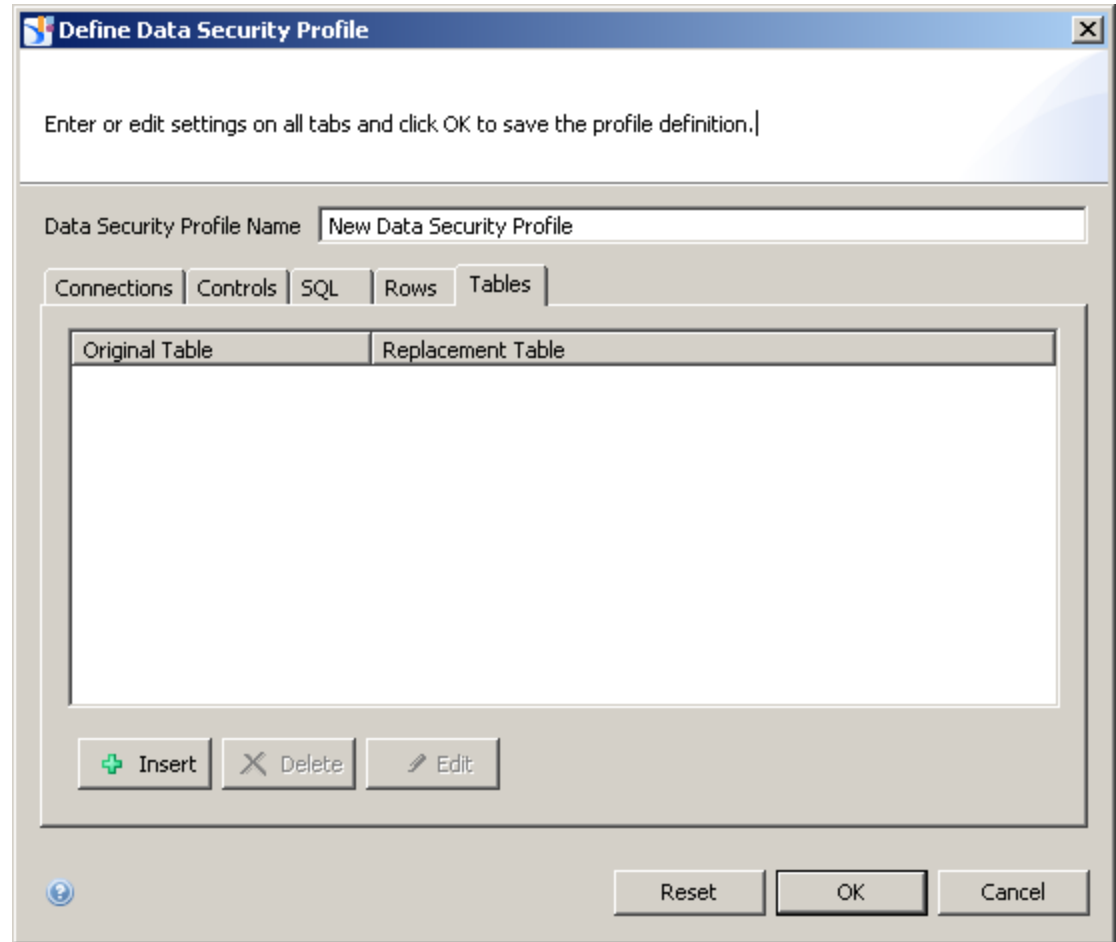
# [ Data Security Profile - Rows

- Force restrictions into SQL Where clause
- Use case: Row level security for sales team so they only see “their” numbers
- May also desire to disable ability to view SQL in Web Intelligence



# [ Data Security Profile - Tables

- Point to different table in database schema
- Use Case:  
Default users point to 1 year of facts but security profile points to 3 years of facts for power users
- Not necessary for replacement table to be defined in universe



# [ Business Security Profile – Create Query

- Hide business layer views or business layer objects from certain users
- Use Case: Control visibility of sensitive measures such as profit margin.

Define Business Security Profile

Enter or edit settings on all tabs and click OK to save the profile definition.

Business Security Profile Name:

Create Query | Display Data | Filters

Business Layer Views	Status
----------------------	--------

+ Insert Granted + Insert Denied X Delete Display

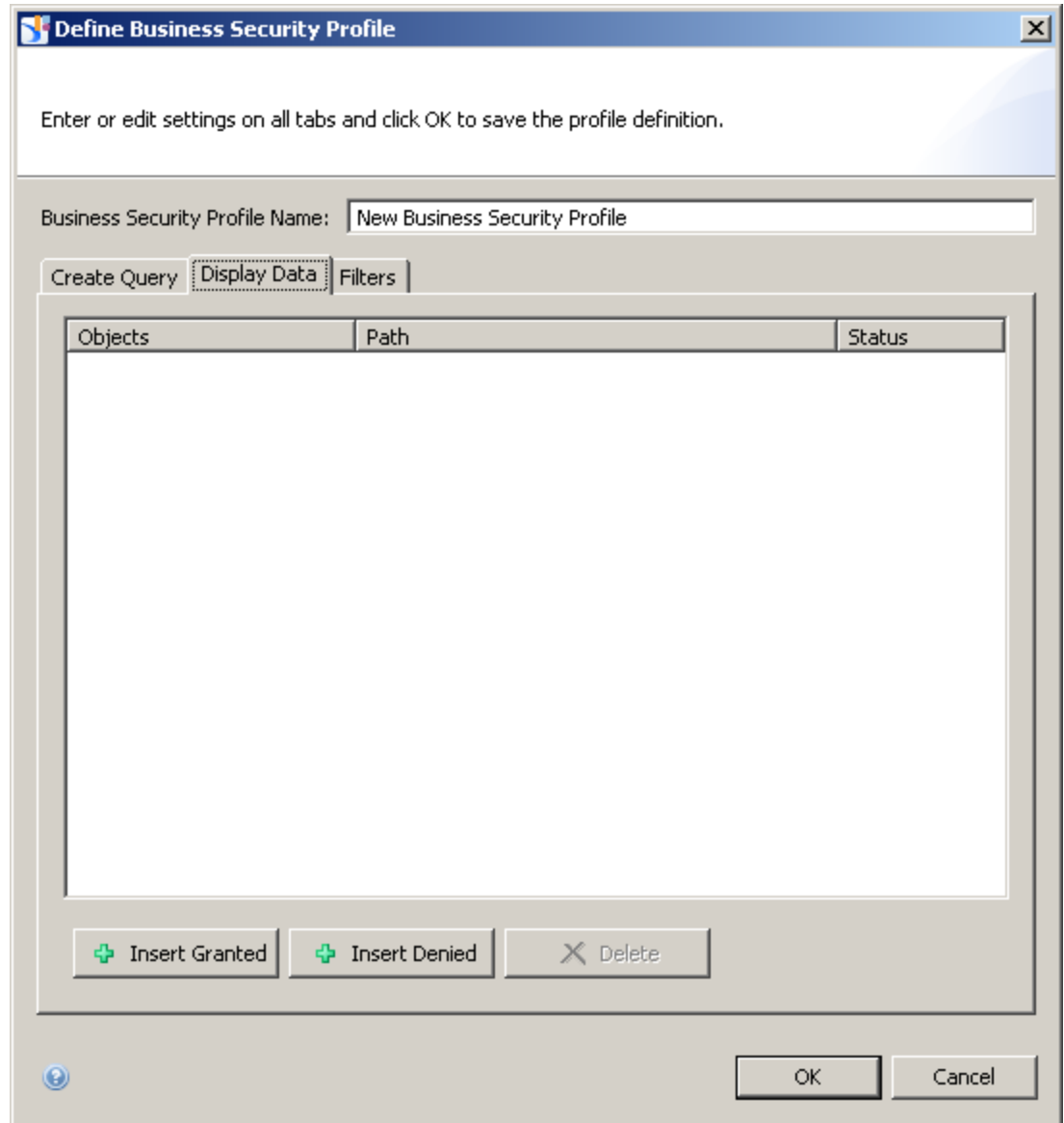
Objects	Path	Status
---------	------	--------

+ Insert Granted + Insert Denied X Delete

OK Cancel

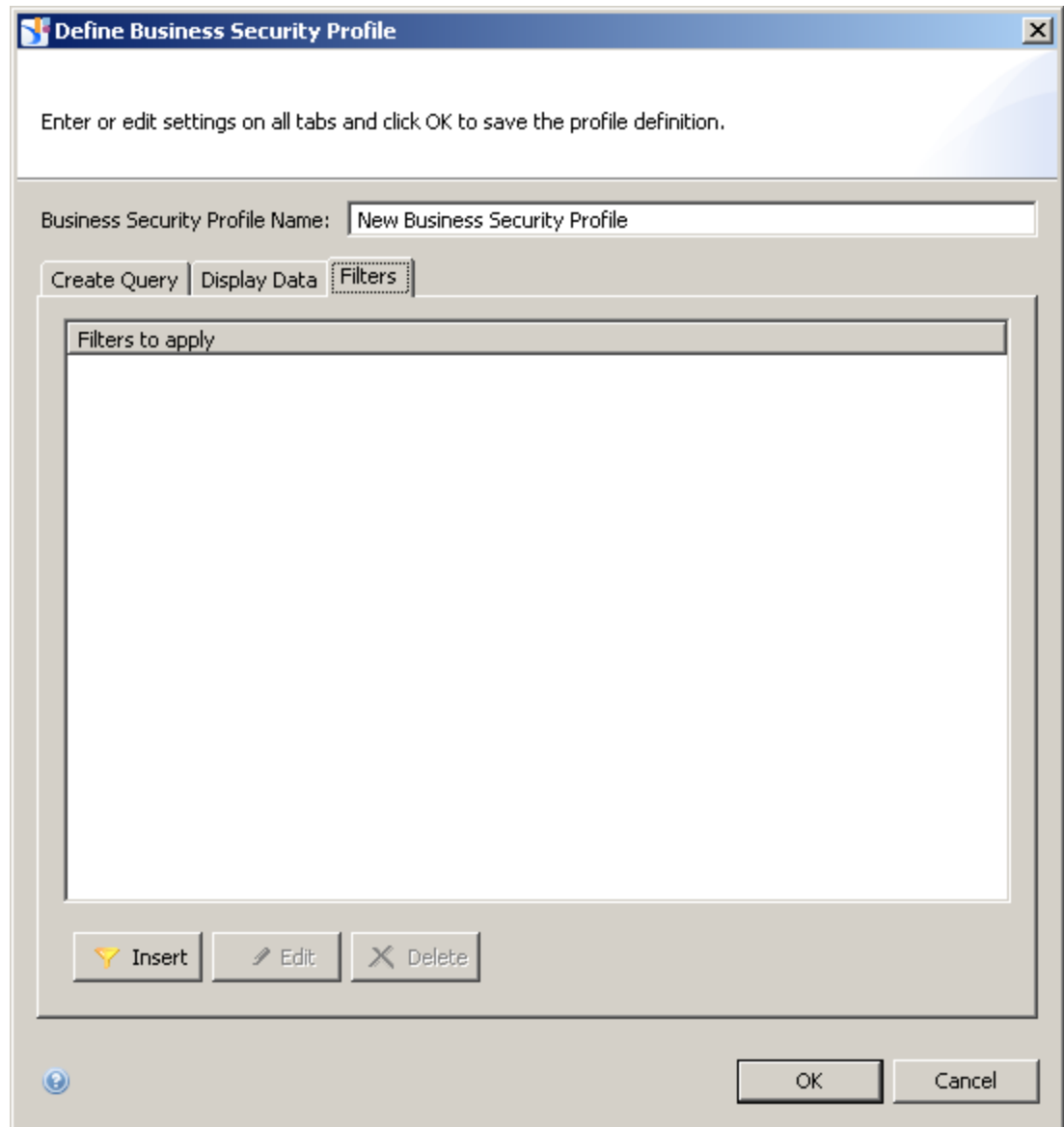
# [ Business Security Profile – Display Data

- Prevents display of objects on report.
- If `AUTO_UPDATE_QUERY` parameter is No, then refreshing report generates an error.
- If `AUTO_UPDATE_QUERY` parameter is Yes, then the denied objects are removed from query and any business layer filters.



# [ Business Security Profile – Filters

- Filter universe objects at the business layer, not database columns at data foundation layer.
- Still applies filter to SQL statement.





Delivering Secure and Personalized Business Intelligence

# DEMONSTRATION



Delivering Secure and Personalized Business Intelligence

# **NEXT STEPS**

# Recommended Reading



SAP BusinessObjects Business Intelligence 4.0  
Business Intelligence Platform Administrator Guide



SAP BusinessObjects Business Intelligence 4.0  
Information Design Tool Guide



SAP BusinessObjects Business Intelligence 4.0  
Web Intelligence User's Guide



Quick Reference Getting Around Information Design Tool  
(SCN)

Visit the SAP Community Network and SAP Help Portal at <http://help.sap.com> to download these free resources.



## SAP BUSINESSOBJECTS INFORMATION DESIGN TOOL



The following tutorials have been developed to help you get started using the Business Intelligence Suite products. New content is added as soon as it becomes available, so check back on a regular basis.

Are there topics we've missed or things we can improve? [Submit new ideas or vote on existing ones](#) to help us better address your learning needs for the BI Suite of products.

Looking for eLearning for the rest of the Business Intelligence Suite?  
[SAP BI Suite Official Product Tutorials](#)

### KEY CONCEPTS (with audio)

- [Concept: Navigate the interface](#)
- [Concept: Create a universe](#)
- [Concept: Create a multisource-enabled universe](#)
- [Concept: Create joins](#)
- [Concept: Compare the information design tool to the universe design tool](#)

### GETTING STARTED

- [Create a project](#)
- [Create a connection to a relational database](#)
- [Create a data foundation based on a single source relational database](#)
- [Create a business layer based on a single relational data source](#)
- [Publish a new universe file based on a single data source](#)

### VISUALIZING DATA IN A UNIVERSE

- [Run a business layer query](#)
- [Edit a business layer query](#)
- [Run a business layer query with pre-defined filters](#)
- [Profile column values in a chart](#)

### BUILDING A MULTI-SOURCE UNIVERSE

- [Create a data foundation based on multiple MS Access connections](#)
- [Create a business layer on a basic multisource data foundation](#)
- [Create a data foundation based on multiple RDBMS connections](#)
- [Add a connection to an existing multisource-enabled data foundation](#)
- [Create calculated columns in a multisource-enabled data foundation](#)

- **SAP BusinessObjects Business Intelligence 4.0: Administration and Security**  
2 days - course code BOE310
- **Information Design Tool 4.0**  
Introduction – 3 days - course code BOID10  
Advanced - 2 days - course code BOID20
- **Web Intelligence 4.0**  
Introduction – 2 days - course code BOW310  
Advanced – 1 day - course code BOW320

Official SAP BusinessObjects curriculum is available on-site at your location or at authorized education centers around the world.



Delivering Secure and Personalized Business Intelligence

# **YOUR QUESTIONS**

# Thank you for participating.

Please remember to complete and return your evaluation form following this session.

For ongoing education on this area of focus, visit the Year-Round Community page at [www.asug.com/yrcc](http://www.asug.com/yrcc)



**SESSION CODE:**  
**5010**

**Dallas Marks**  
[dallas@dallasmarks.org](mailto:dallas@dallasmarks.org)  
<http://dallasmarks.org/>