Information Map Studio – Map Your Way through the Data
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Alejandro Farias, Texas Parks and Wildlife Department, Austin, Texas

ABSTRACT

This reference document can serve as a summary instructional tool for SAS® Information Studio and is written to assist those responsible for providing access to data, such as an information architect, for data consumers. Topics covered include:

- Selecting Tables
- Table Relationships
- Selecting Data Items
- Organizing Data Items
- Creating a Custom Category or Calculated Data Item
- Single and Combination Filters
- Prompted Filters
- Test Queries
- Resource Replacement/Moving/Saving Information Maps

INTRODUCTION

In the simplest terms, SAS® Information Maps enable data consumers to access data. Information maps can be utilized by several SAS® products, including but not limited to Enterprise Guide, Add-In for Microsoft Office, Web-Report Studio and Information Delivery Portal.

Data consumers are not required to know or even understand SQL or the structure of the underlying data source. An information architect can utilize predefined business logic or calculations, filters, and prompts to aid the data consumer in querying data. By simplifying the process of data accessibility, data consumers can focus on analyzing data output rather than spending time learning how to access, modify or select data for analysis.

SELECTING TABLES

The first step in designing an information map is selecting one or more data tables or a single cube. (Note: You cannot use both tables and cubes in the same information map). In this example will be using table data.
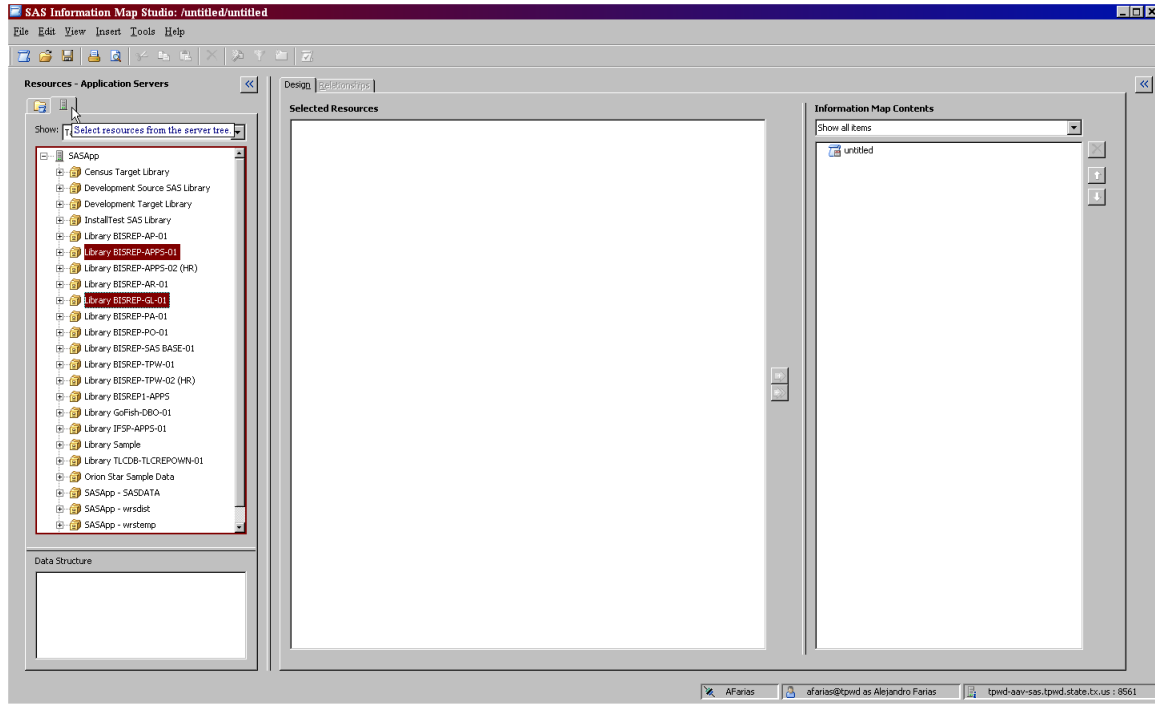
You can select existing information maps from the folder tree or select tables to create a new information map from the server tree (above). The two different libraries used to select the tables are the BISREP-APPS-01 and BISREP-GL-01.

This specific information map (GL_Information Map) is designed by selecting 8 tables and creating a relationship between those tables.
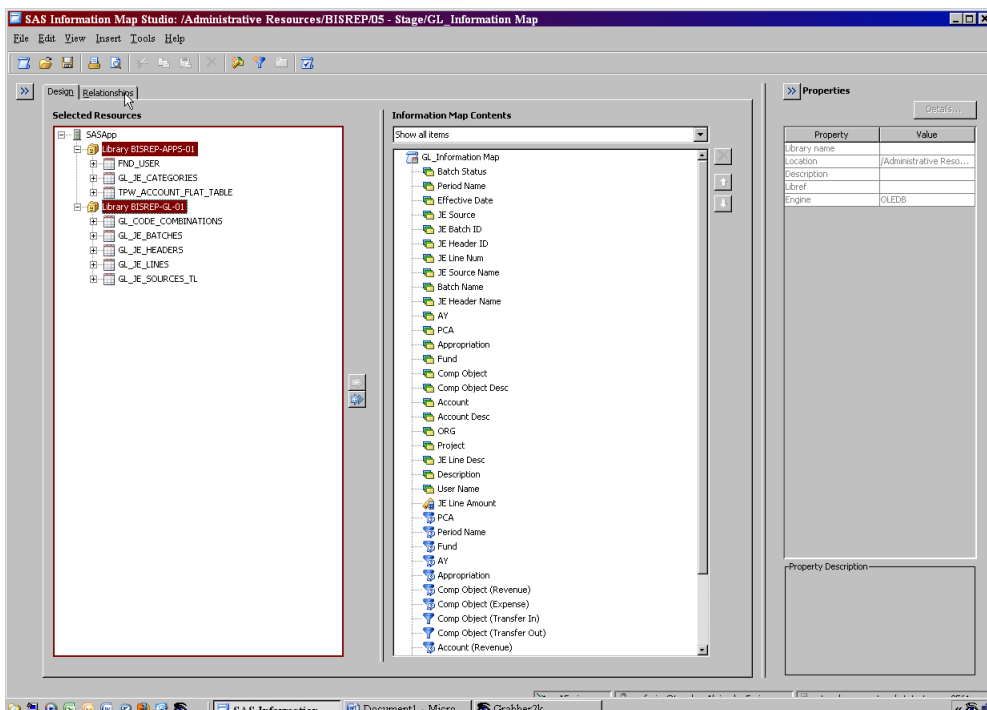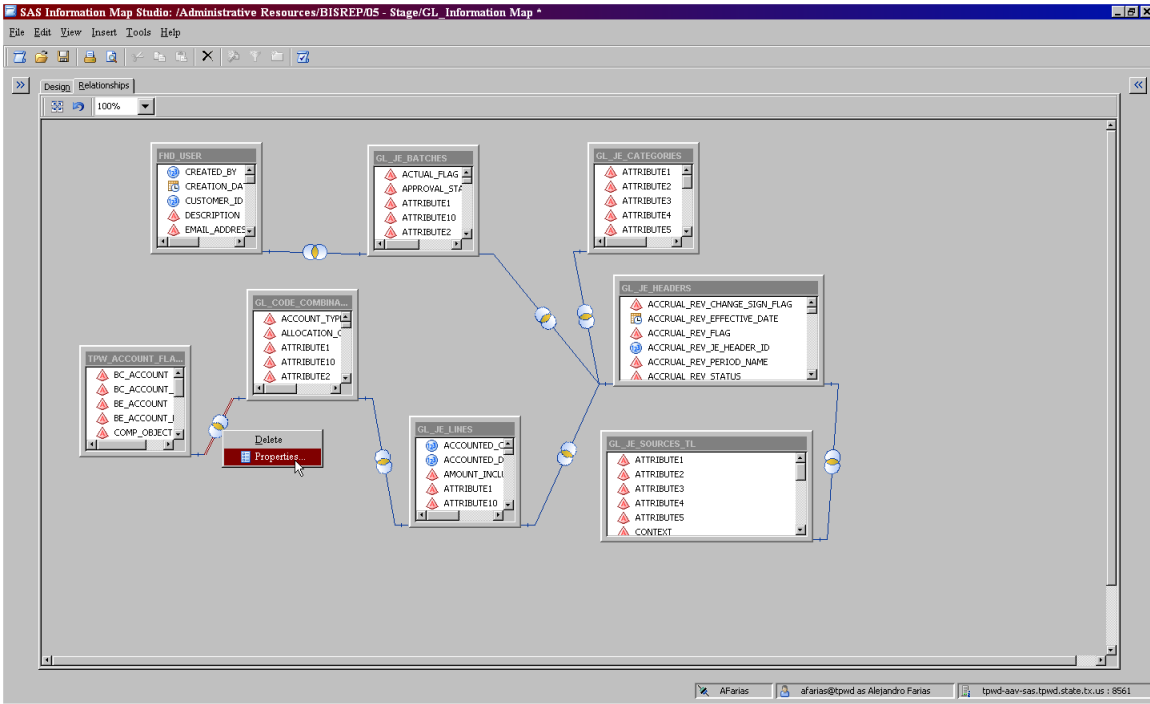
TABLE RELATIONSHIPS

A table relationship is an association between data tables in an information map that generates a database join in a query. Typically, an information architect will have a data dictionary that outlines how tables relate to each other. This data dictionary serves as a blueprint for table relationships. *Appendix A includes a sample data dictionary for the GL_Information Map used in this example.*
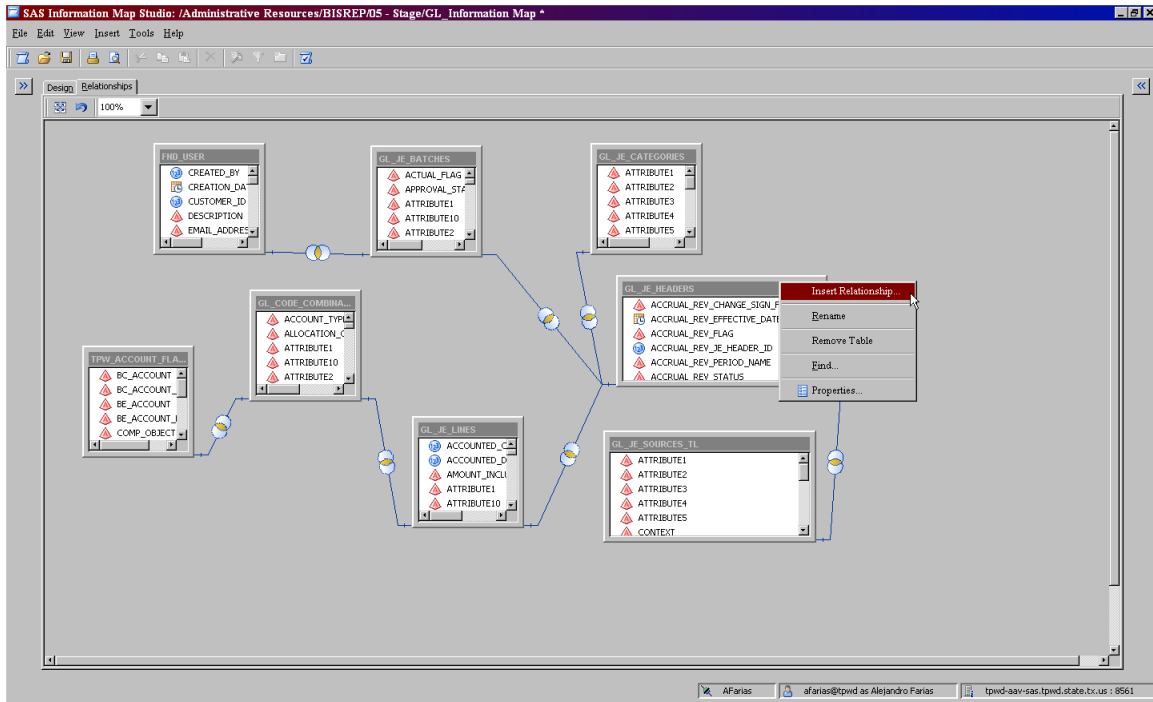
By selecting the "Relationship" tab a graphical representation of the data source tables used and associated relationship nodes are provided (below).
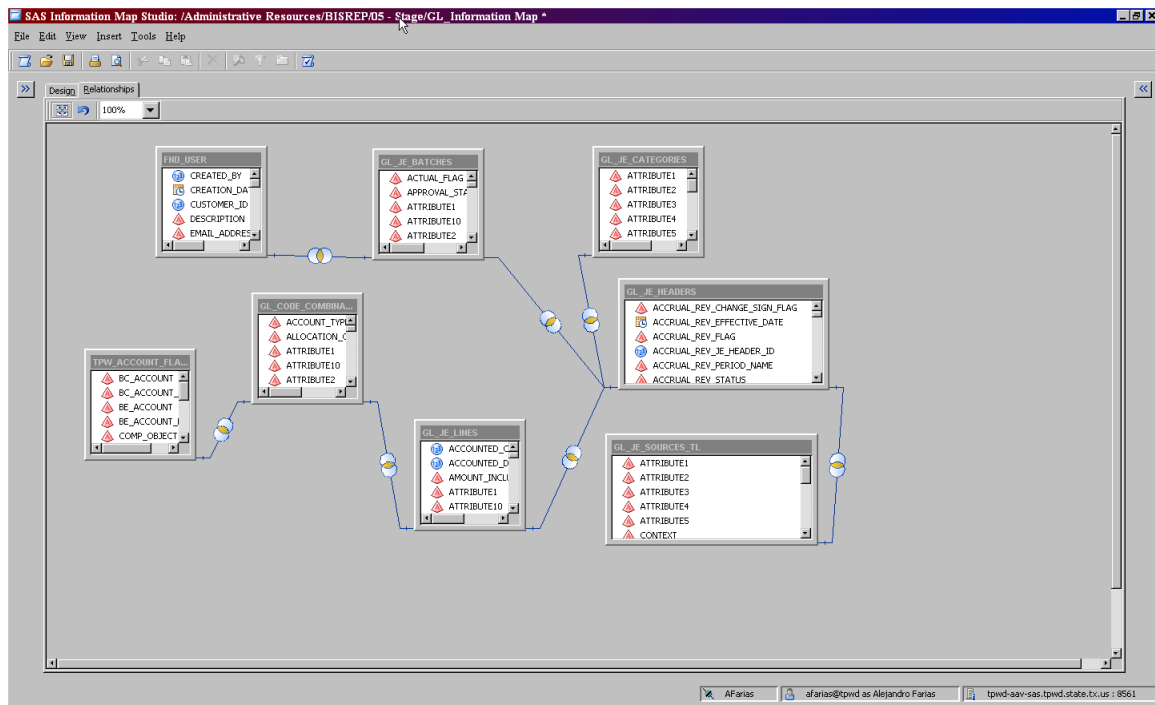

You can view the properties of a relationship by right clicking or double clicking the relationship node (below).

You can insert a relationship by right clicking any table (below).

The relationship properties are displayed for the join between the FND_USER table and the GL_JE_BATCHES table. As you can see below, the relationship between these two tables is an inner join between USER_ID from the FND_USER table and CREATED_BY from the GL_JE_BATCHES table.
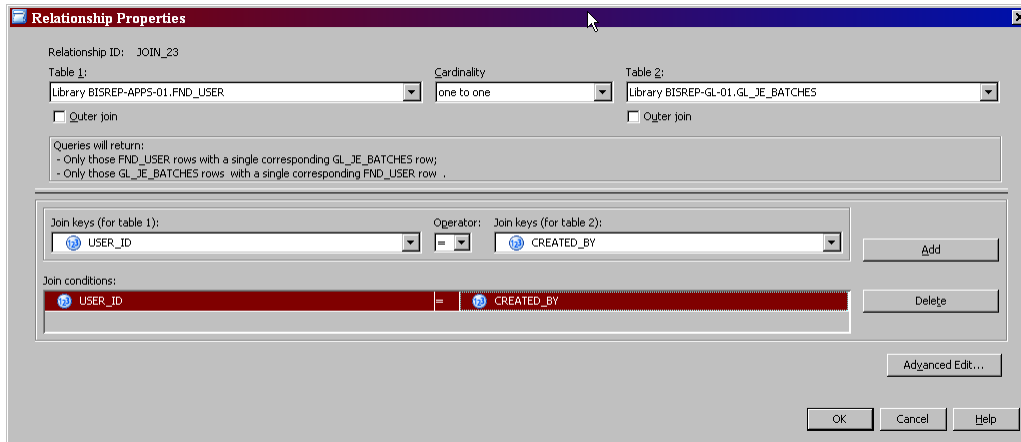
In addition, you can specify whether or not to perform an outer join and the type of cardinality between tables. Cardinality in a join is a property that describes whether one row or many rows in one table are associated with one row or many rows in the other table.

An advanced edit option is provided at the lower right hand side of the relationship properties window. However, once you create or modify a relationship expression using advanced edit, you will always be required to use the editor for all future updates of the expression.

Documenting each relationship from each table in a data dictionary will prove to be a valuable resource when training new employees to design, modify, and maintain information maps.

Selecting Data Items

A data item is a column in a data table that is either a logical view or a physical data field or calculation. There are three types of data items that can be used:

- Category (Can contain character data or numeric data)
- Measure (Contains numeric data and is used for computations)
- Hierarchy (Part of an OLAP cube arrangement of levels of a dimension)

You can use the drop down menu on any information map to view a specific data item type (below).
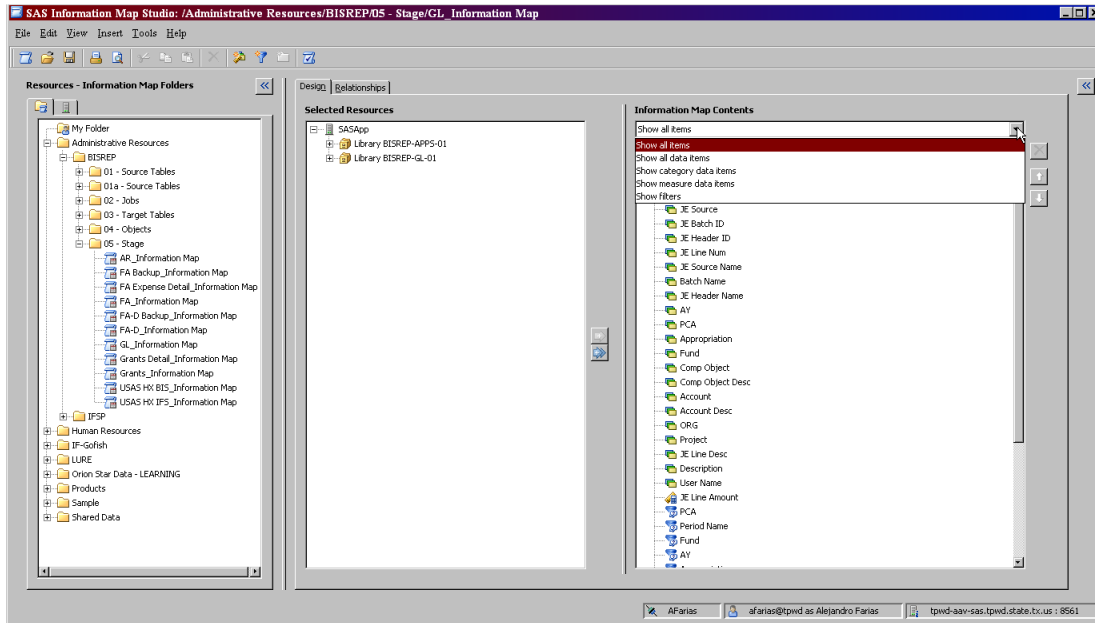
Organizing Data Items

Organizing data items for data consumers provides a more efficient method to search and select data to query. A simple method to organize data elements is to create folders. When you have hundreds of data items creating folders allows categorization of data elements, which often leads to indirectly grouping data that creates a custom query or report.
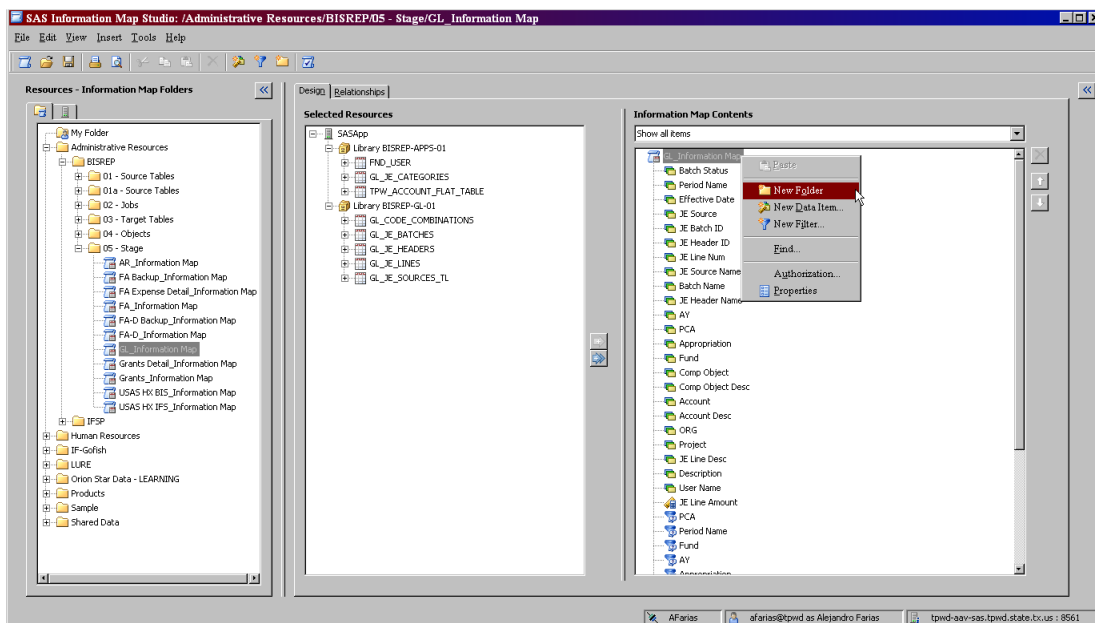
Creating a Custom Category or Calculated Data Item

When creating a custom category or calculated data item take the time to understand what you are trying to accomplish and write out the process. This provides documentation for your

thinking and helps you plan what you are trying to achieve. If time is an issue, utilize the target audience as a check. For example, if you are using logic to categorize transactions for your data consumers, review the logic and output with your target audience and to see if it makes sense to them.
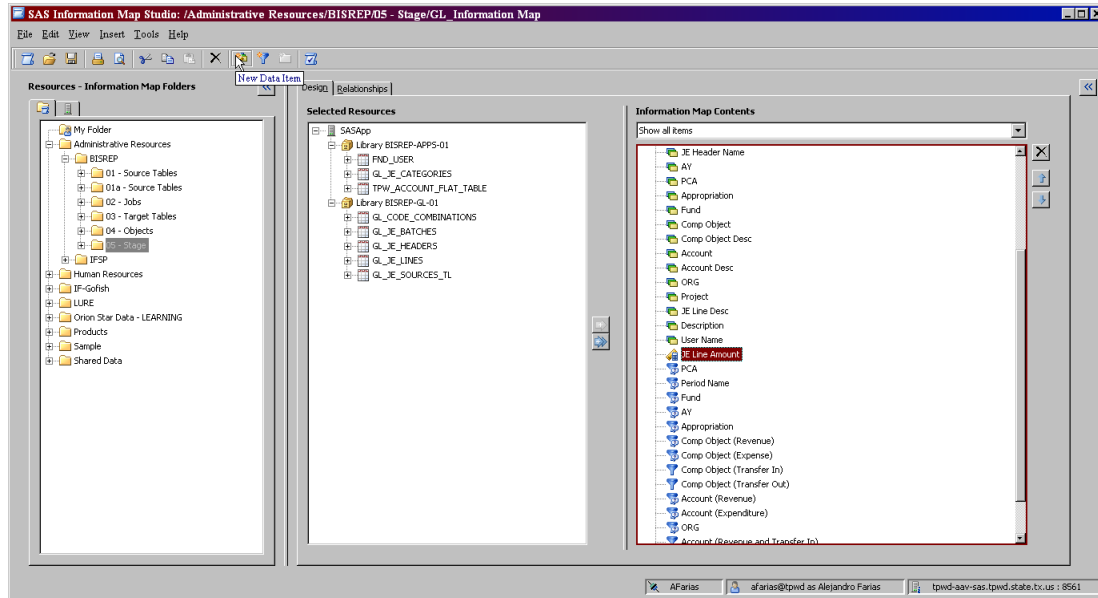
You can create a data item by selecting New Data Item (above). Remember, the output can be numeric or a character. As an example, the following CASE statement produces a calculated result for JE Line Amount above.

```
CASE
WHEN <<GL_JE_LINES.ENTERED_CR>> IS MISSING
OR <<GL_JE_LINES.ENTERED_CR>> =0
THEN <<GL_JE_LINES.ENTERED_DR>>*-1
ELSE <<GL_JE_LINES.ENTERED_CR>>
END
```

The following CASE statement produces a character result.

```
CASE
WHEN
SUBSTRN (<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,1,2)='CC' & SUBSTRN
(<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,10,3)='.SP' THEN 'State Parks'
WHEN
SUBSTRN (<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,1,2)='CC' & SUBSTRN
(<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,10,3)='.CF' THEN 'Coastal Fisheries'
WHEN
```
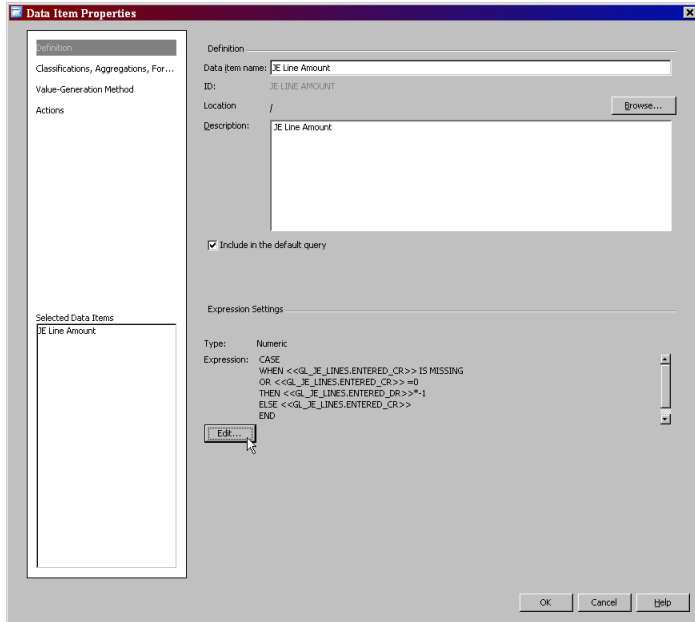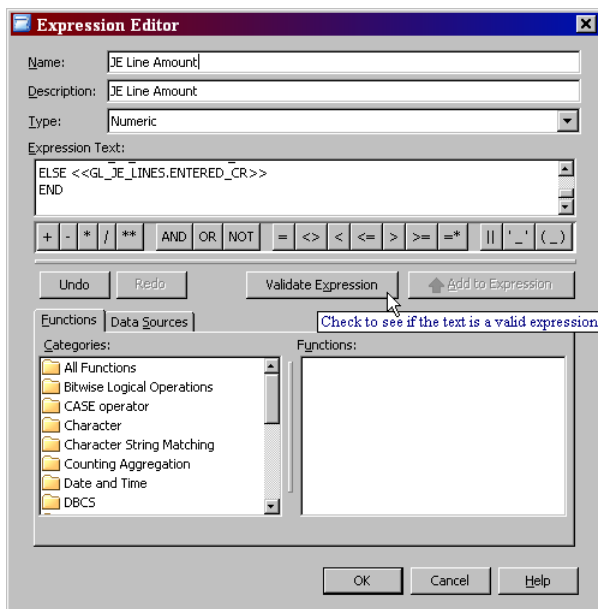
SUBSTRN (<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,1,2)='CC' & SUBSTRN (<<TPW_DET_FUNDS_AVAIL_ALL_V.PROJECT>>,10,3)='.IF' THEN 'Inland Fisheries'
ELSE
'REVIEW'
END

Both examples are setup using the EDIT button under the Definition menu. Below are example screen shots depicting where the expression is designed and verified for use by the Validate Expression button.

Single and Combination Filters

Single and combination filters can be created to help data consumers narrow the scope of a query. (My experience has proved time and time again the more defined the parameters of a query are, the faster the result). You can assign static values to filters by using (the New Filter icon). Below are four examples of static filters. The filter on the upper left shows only specific Accounts, while the filter on the upper right has a range of Accounts. Both filters below show static combinations.
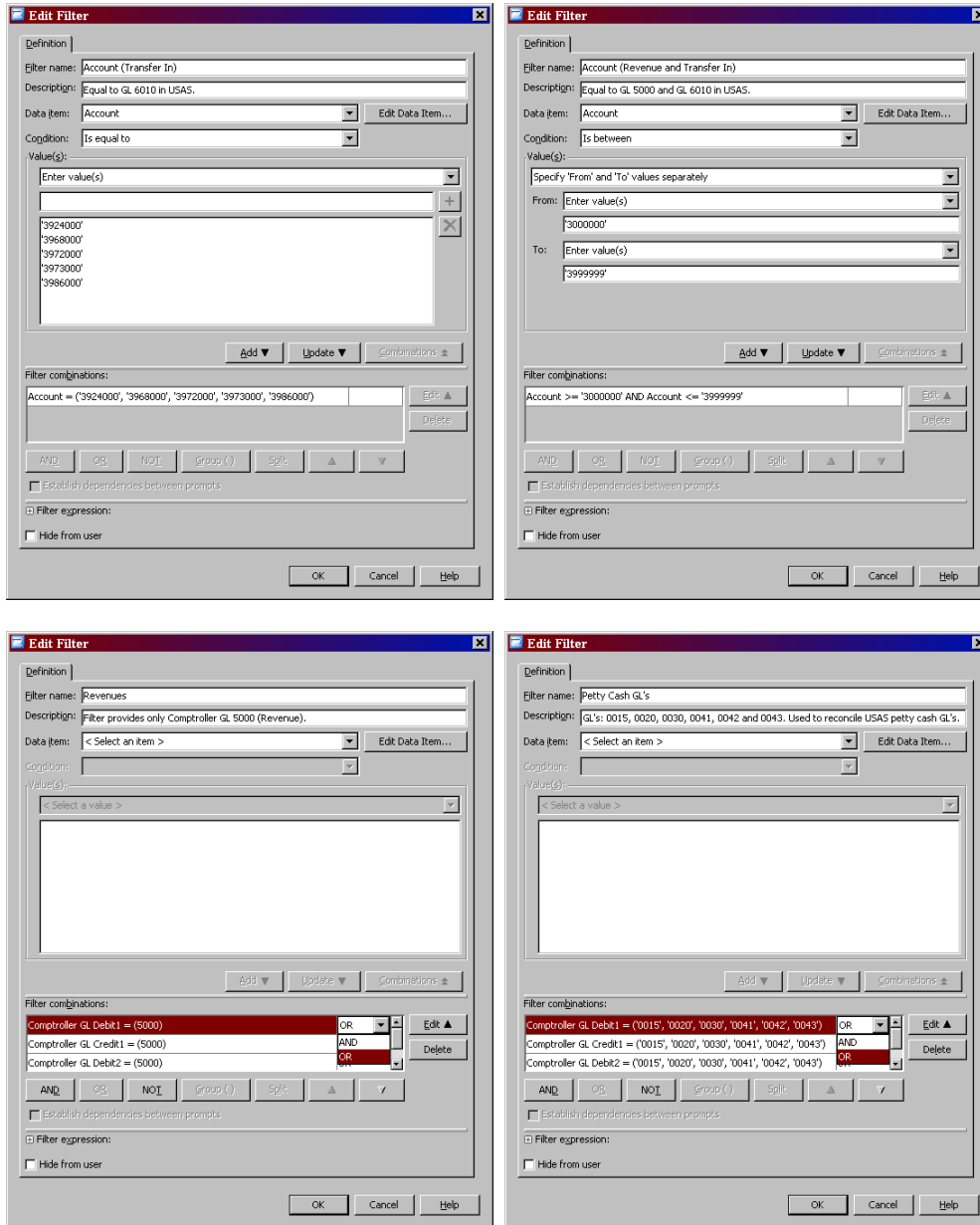
Prompted Filters

A prompted filter allows you to create a filter which enables end users to specify filter values at run time. The user can either enter values, select from a static list of values or select from a dynamic list of values. With either method of prompting, a number of values can be specified from single values, multiple values or multiple ordered values.
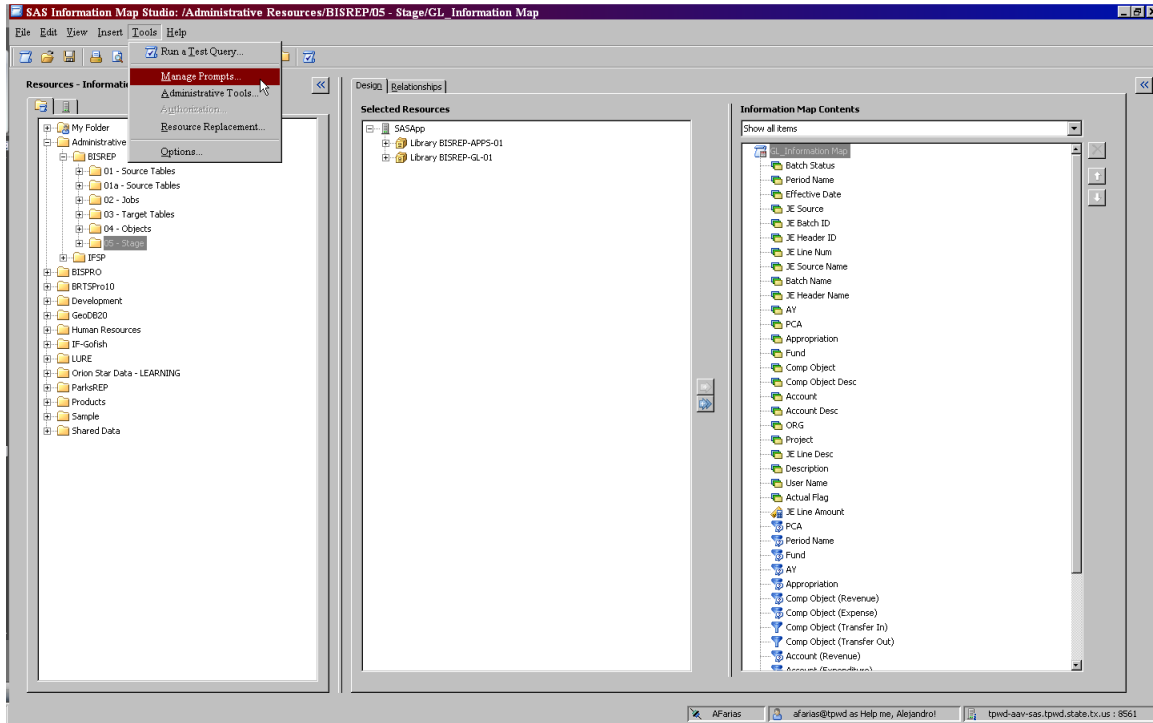

The following example shows how the AY prompted filter was created. Begin by selecting New and naming the prompted filter. You can also edit, delete and Add Shared prompted filters from the Manage Prompts menu.
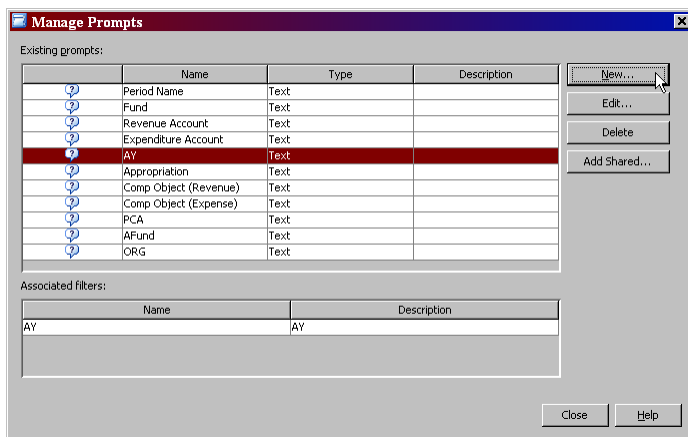

Next, select the Prompt Type and Values tab and identify the following elements:

- Prompt type
- Method for populating the prompt
- Number of values
- List of values

Note: For this example we are using a static list that allows the user to select more than one AY.
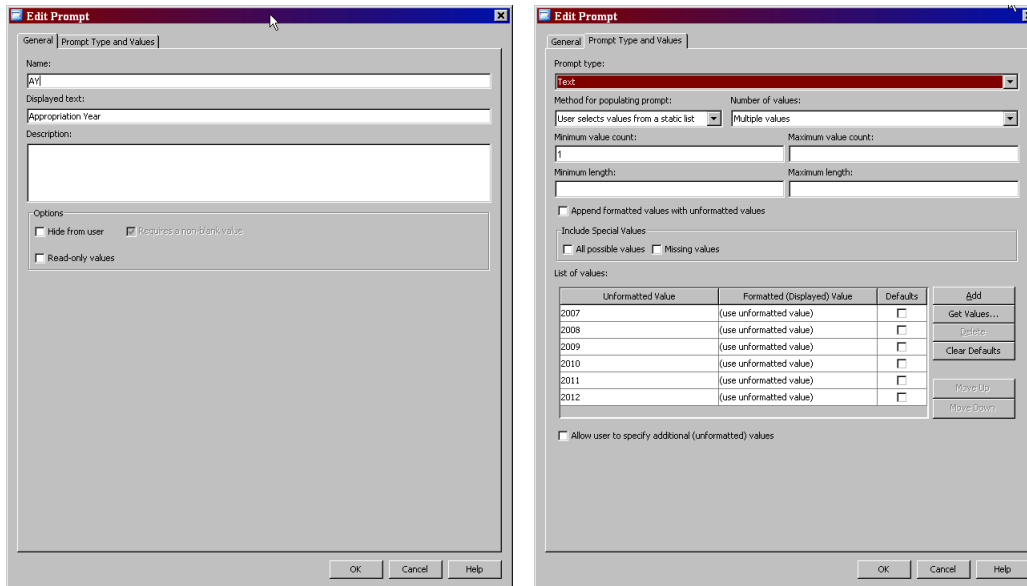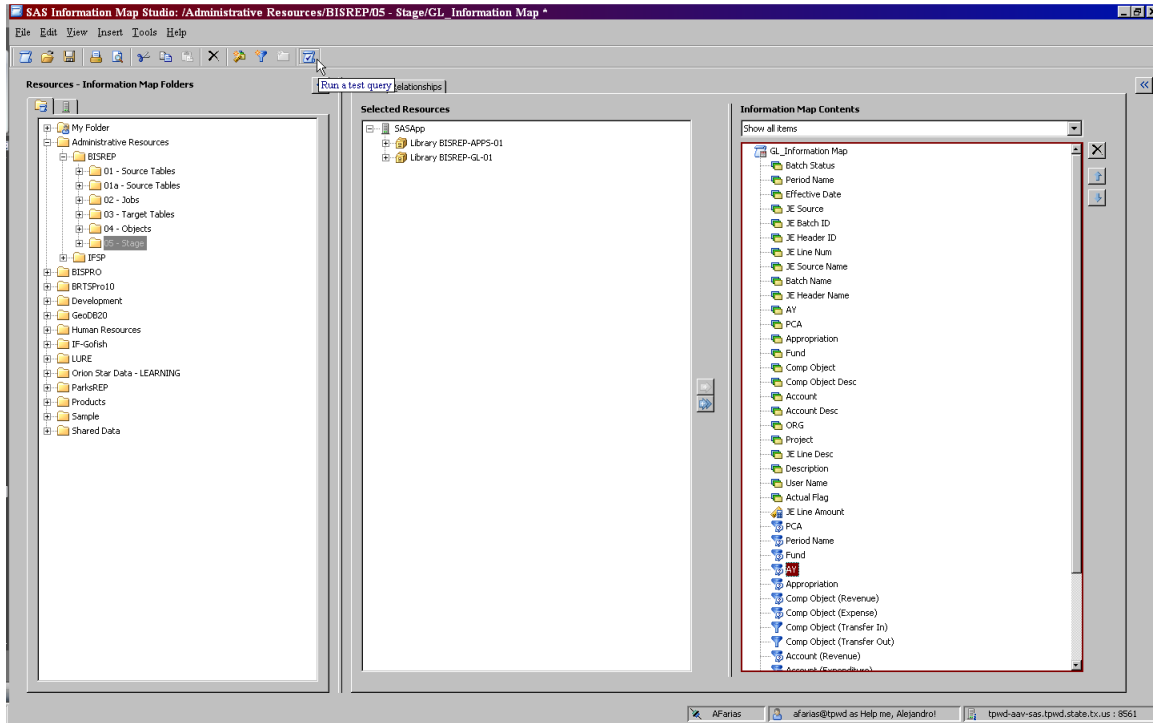

After you complete the prompt setup process you must attach the prompt to a filter. Select the New Filter and attach the created prompt (AY) to a filter.
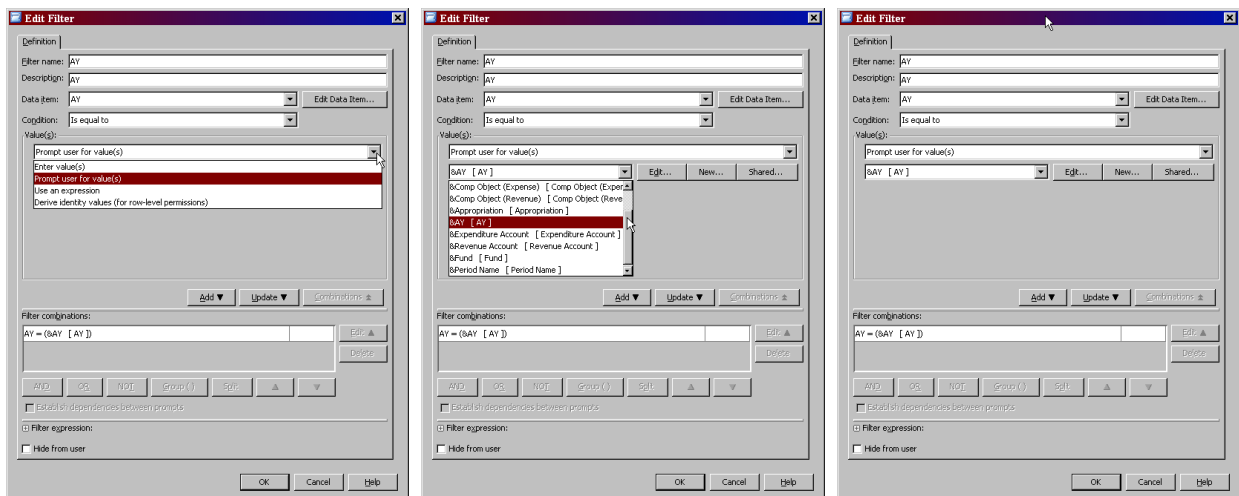
Test Queries

Running test queries on new information maps allows an information architect to verify that it works as intended. On the main window (below) select the Run a test query icon.

Using the Available items, select a few items to query and run the test. Try limiting the number of values or rows in order to minimize the time for the query results to be retrieved.
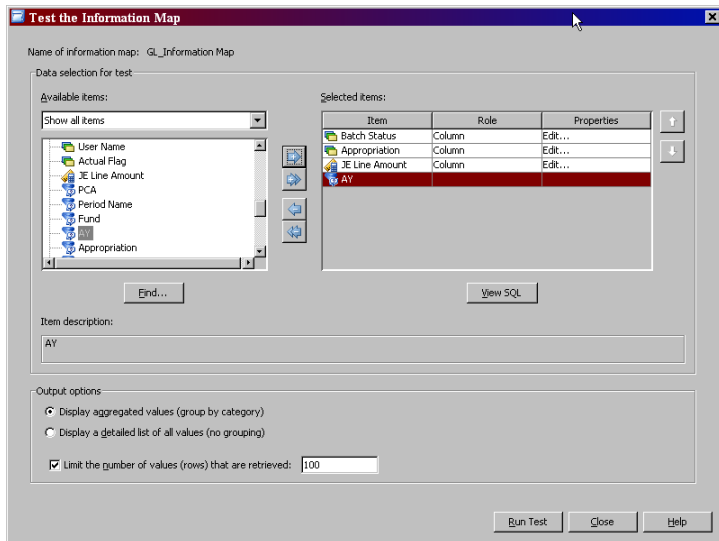
Resource Replacement/Moving/Saving Information Maps

An Information Map can reference many types of metadata often spanning several servers, tables and libraries. Over time, it may be necessary to modify an existing connection (i.e. OLEDB vs. ORACLE) or evening moving between a development, replicated, or production database.

The Resource Replacement option provides a way for an information architect to repair or update references to resources without having to re-create the Information Map.
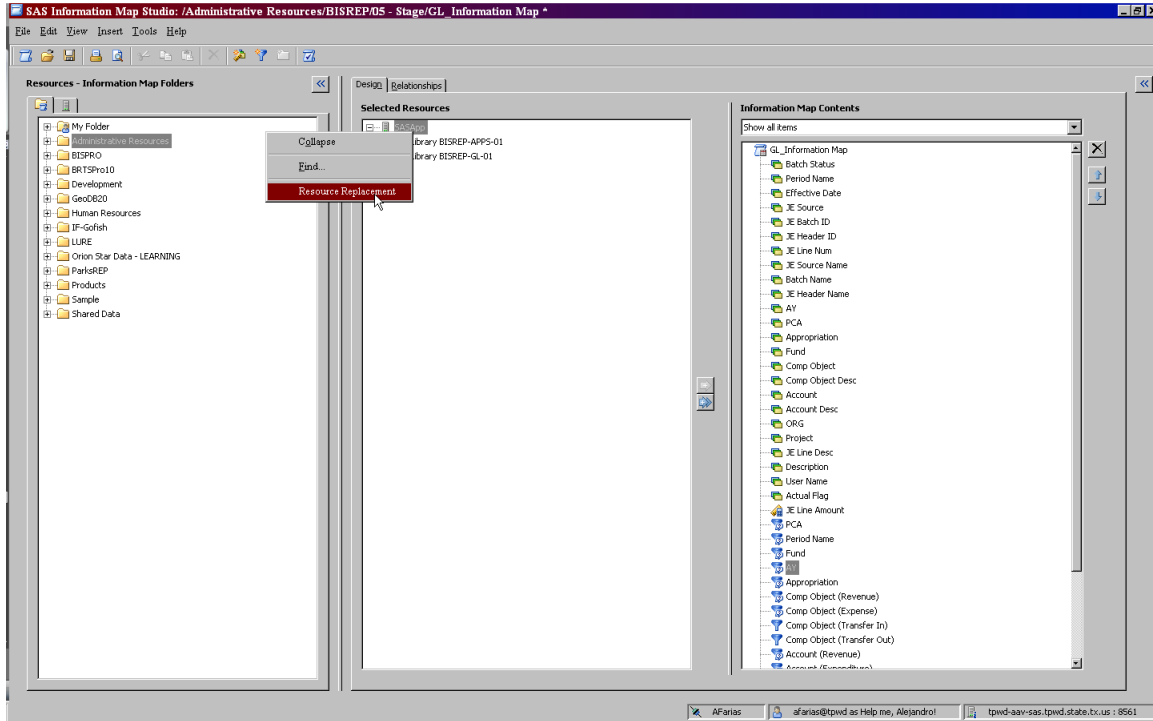
In this example, an update is made to move the GL_Informaton Map from an OLEDB connection to an ORACLE connection.

Deselecting the Display only unresolved resources box (below) will show the Original Library and Replacement Library options. By choosing the Replacement library and selecting OK the process will be complete.

Resource Replacement

Application Server
Libraries
Tables
Columns

Libraries

The following table includes all of the libraries that are resources for the information map. Select a replacement for each original library.

☐ Display only unresolved resources

Original Library	Replacement Library
Library BISREP-APPS-01	Library BISREP-APPS-01
Library BISREP-GL-01	Library BISREP-GL-01
	Census Target Library
	Development Source SAS Library
	Development Target Library
	Library BISPRO-APPS-01
	Library BISPRO-Consultant-01
	Library BISREP-AP-01
	Library BISREP-APPS-01
	Library BISREP-APPS-02 (HR)

	Original	Replacement
Location:		
Description:		
Libref:	BISREP03	BISREP03
Engine:	OLEDB	OLEDB

OK   Cancel   Help

As a final note, maintenance is often required in order for your Information Maps to be up-to-date and working properly. It is important to receive constant feedback from end-users to determine if the specific map is accomplishing its goals. As reporting requirements change, so will your Information Maps. New data elements will need to be added, updates to static prompt lists, and even creating new logic short cuts and methods that will ease the effort required from your end-users.

Remember, Information Maps should serve to simplify the process of getting to the data for the end-user, not make it more complicated. When completed, Information Maps can serve your organization as a user-friendly road map to retrieve and analyze underlying data sources.

Appendix A:

General Ledger (GL_Information Map) Data Dictionary

GL Information Map Tables

APPS.FUND_USER
APPS.GL_JE_CATEGORIES
APPS.TPW_ACCOUNT_FLAT_TALBE
GL.GL_CODE_COMBINATIONS
GL.GL_JE_BATCHES
GL.GL_JE_HEADERS
GL.GL_JE_LINES
GL.GL_JE_SOURCES_TL

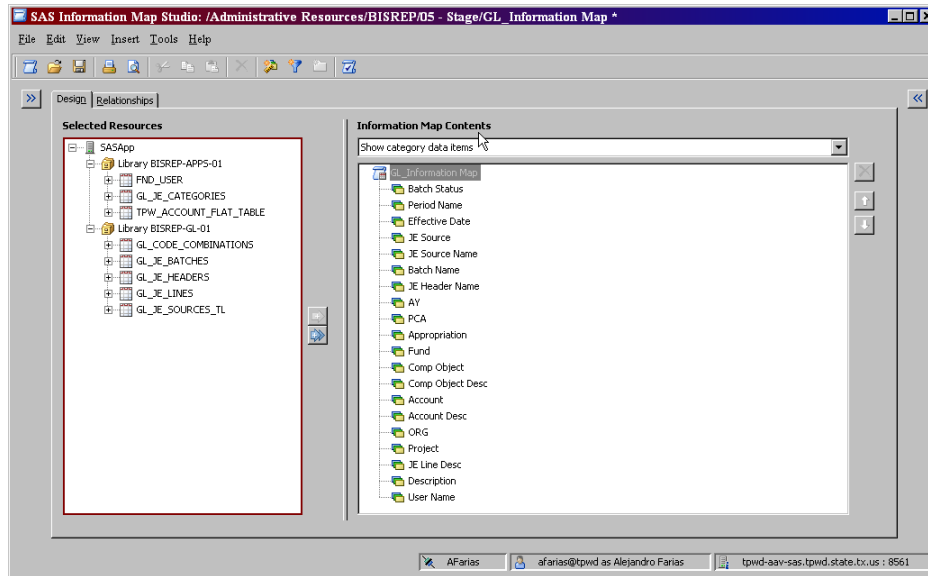## GL Information Map Joins

(<<GL_JE_LINES.CODE_COMBINATION_ID>> =
<GL_CODE_COMBINATIONS.CODE_COMBINATION_ID>>)
(<<GL_JE_HEADERS.JE_HEADER_ID>> = <<GL_JE_LINES.JE_HEADER_ID>>)
(<<TPW_ACCOUNT_FLAT_TABLE.TPW_ACCOUNT>> =
<<GL_CODE_COMBINATIONS.SEGMENT5>>)
(<<GL_JE_CATEGORIES.JE_CATEGORY_NAME>> = <<GL_JE_HEADERS.JE_CATEGORY>>)
(<<GL_JE_SOURCES_TL.JE_SOURCE_NAME>> = <<GL_JE_HEADERS.JE_SOURCE>>)
(<<GL_JE_BATCHES.JE_BATCH_ID>> = <<GL_JE_HEADERS.JE_BATCH_ID>>)
(<<GL_JE_BATCHES.CREATED_BY>> = <<FND_USER.USER_ID>>)

GL Information Map Data Items

<<GL_JE_HEADERS.STATUS>> **as Batch Status**
<<GL_JE_HEADERS.PERIOD_NAME>> **as Period Name**
<<GL_JE_LINES.EFFECTIVE_DATE>> **as Effective Date**
<<GL_JE_HEADERS.JE_SOURCE>> as JE Source
<<GL_JE_SOURCES_TL.USER_JE_SOURCE_NAME>> **as JE Source Name**
<<GL_JE_BATCHES.NAME>> **as Batch Name**
<<GL_JE_HEADERS.NAME>> **as JE Header Name**
<<GL_CODE_COMBINATIONS.SEGMENT1>> **as AY**
<<GL_CODE_COMBINATIONS.SEGMENT2>> **as PCA**
<<GL_CODE_COMBINATIONS.SEGMENT3>> **as Appropriation**
<<GL_CODE_COMBINATIONS.SEGMENT4>> **as Fund**
<<TPW_ACCOUNT_FLAT_TABLE.COMP_OBJECT>> **as Comp Object**
<<TPW_ACCOUNT_FLAT_TABLE.COMP_OBJECT_DESC>> **as Comp Object Desc**
<<GL_CODE_COMBINATIONS.SEGMENT5>> **as Account**
<<TPW_ACCOUNT_FLAT_TABLE.TPW_ACCOUNT_DESC>> **as Account Desc**
<<GL_CODE_COMBINATIONS.SEGMENT6>> **as ORG**
<<GL_CODE_COMBINATIONS.SEGMENT7>> **as Project**

<<GL_JE_LINES.DESCRIPTION>> **as JE Line Desc**

<<GL_JE_HEADERS.DESCRIPTION>> **as Description**
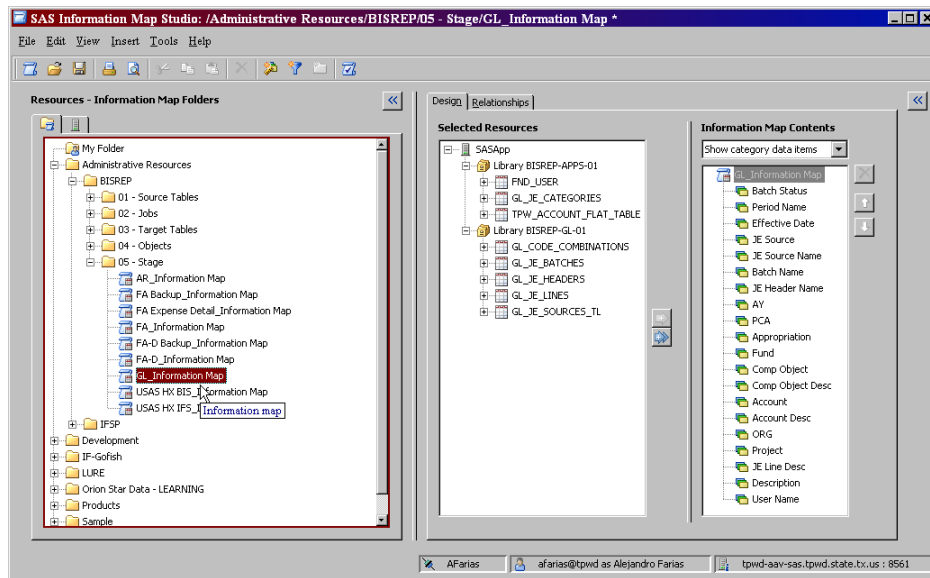
<<FND_USER.USER_NAME>> **as User Name**

GL Information Map (Filters)

- PCA
- Period Name
- Fund
- AY
- Appropriation
- Comp Object (Revenue)
- Comp Object (Expense)
- Comp Object (Transfer In)
- Comp Object (Transfer Out)
- Account (Revenue)
- Account (Expenditure)
- Account (Revenue and Transfer In)
- Account (Transfer In)
- Account (Expenditure and Transfer Out)
- Account (Transfer Out)
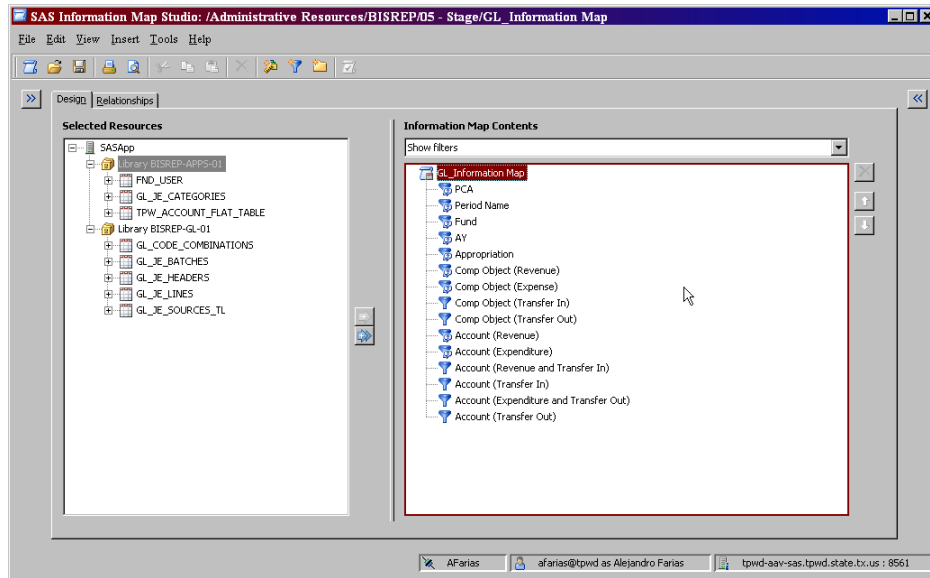
Map Location:

<u>Map Designer:</u>

Alejandro Farias
Administrative Resources Division
Phone 512.389.8154
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