Govern

Govern Business Entity Designer (BED)

Release 6.0

Last Revision Update: 12/9/14

Govern

Business Entity Designer

December 2014 - Release 6.0

Version: Final Draft

This edition reviewed by the PKO Team

Disclaimer or Warranties and Limitations of Liabilities

Harris Govern has taken due care in preparing this manual. However, nothing contained herein modifies or alters in any way the standard terms and conditions of the purchase, lease, or license agreement by which the product was acquired, nor increases in any way the liability of Harris Govern to the customer.

Table of Contents

Introduction: Business Entity Designer

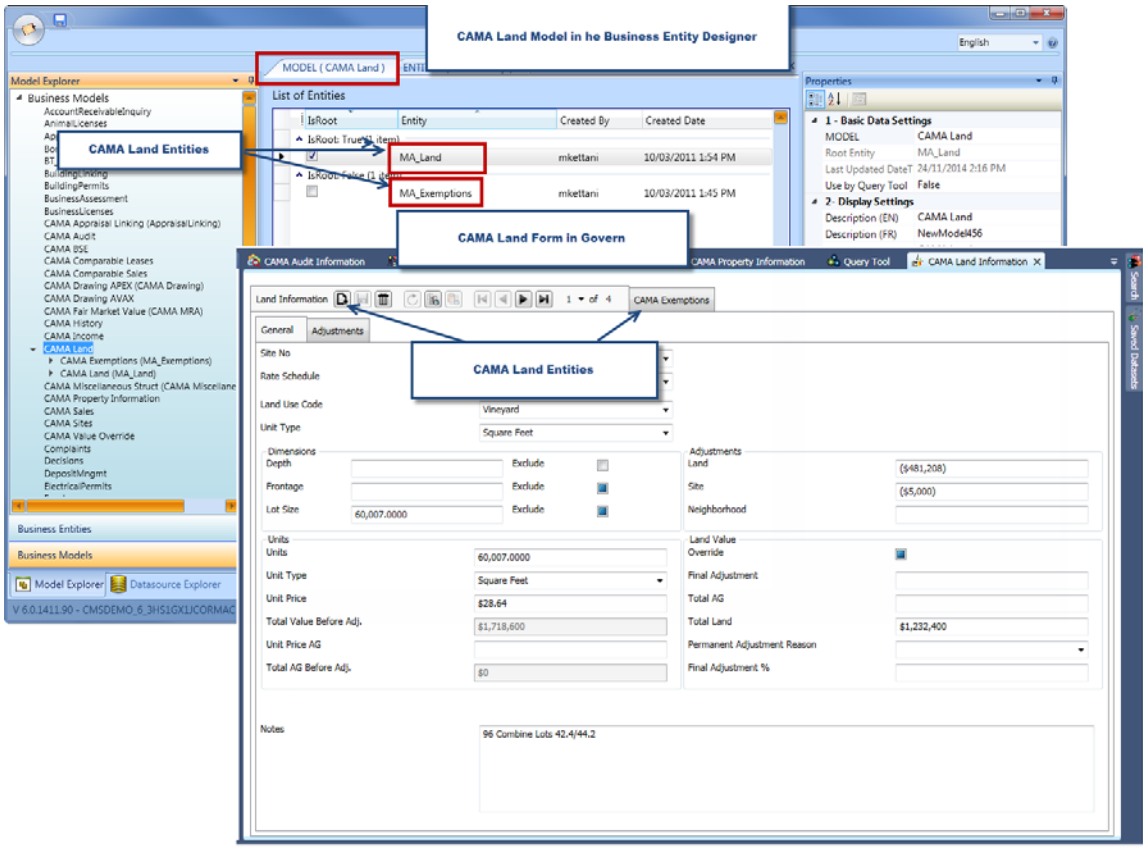
Overview

The Govern Business Entity Designer (BED) is used for setting up the business models, entities, and attributes for the data entry forms used in Govern OpenForms and the Govern Query Tool.

It is the interface between the Govern datasource and the Govern OpenForms applications. First, it is used for setting the datasource and connection key for all applications in the deployment. For example, you may have several Govern OpenForms deployments, one for production, testing, live, and training. The connection key that is defined in the BED is used by all.

The Govern end-user forms are based on the business models and entities created in the BED. The business models contain the business entities and the business entities contain the attributes. The attributes are linked to database columns, in most cases, although they can also stand alone. The entities can contain one or more database tables. On the end user forms in Govern, the business models are the equivalent of the forms, the business entities are the equivalent of dividers on a form, and the attributes are equivalent to the fields.

For example, as illustrated in the following screen shots, the CAMA Land business model contains the MA_Land and MA_Exemptions business entities. These are the Land Information and the Exemptions dividers displayed at the top of the Land Information form in Govern.



All data mapping is performed in the Business Entity Designer (BED). Links between business entities and between tables are created in this application. Once the mapping is complete, you can design the form in the OpenForms Designer (OFD).

What's New

Overview

The Business Entity Designer Editor (BED), version 6.0 has a new look and feel and the following list of enhancements.

General

The size and position of the application are saved in memory. When you close and reopen the Business Entity Designer, it is positioned on your computer screen as you left it. The size of the UI is the same as your last session. This is true for all applications in the Govern Product Suite.

The information in the BED Editor is presented in a new grid format that makes better use of the space. You can choose which columns to show or hide in the grid.

Models and entities are listed by description in the explorers on the left. This is followed by the name or code if it is different from the description.

Business Models

When you select a model, the root entity is listed first. Other entities are listed by name.

If you double-click on an entity, the entity opens in the BED Editor.

Business Entities

The business entity information is presented in a hierarchy: datasources, tables, and finally attributes.

You can expand or collapse the datasources and tables.

The **Refresh Values from the Datasource** now adds all missing attributes to the entity. Previously, only the required attributes were added. An information message is generated at the end of the process. This lists all the entities and the attributes that were modified.

Attribute Properties

Lookup, calculated, and field masks are grouped under one category: Predefined Content.

The Predefined Content and Predefined Content Details are listed in the grid.

You can see at a glance which attributes are associated with lookups, expressions, or field masks.

The Identity Type property has two choices now: None or Govern.

Some properties and options that were no longer useful were removed. These are:

- Is Searchable
- Special attribute
- Clear Map Data

Chapter 1: Getting Started

Overview

This chapter provides references for the System Requirements, installation procedures, and other prerequisite information for the Govern Business Entity Designer.

System Requirements

For details on the system requirements for the BED, refer to the Govern System Requirements guide.

Installation

The Business Entity Designer (BED) is installed, with the other applications in the Govern OpenForms Product Suite, by Govern Deploy EZ. The connection keys that are required for connecting with the datasource are also defined in Deploy EZ. They are managed in GNA. *For details on the installation procedures for the BED, refer to the Govern Deploy EZ guide*.

Prerequisites

You need valid connection keys for all the datasources you intend to use: For example, you could have three separate datasources called test, production, and live.

Datasource Connection Keys

In a setup with a test, production, and live datasource, the live datasource is typically the primary datasource.

You create the connection key to this datasource when you run Deploy EZ for the first time on a new deployment. Alternatively, you can create all datasource connection keys in GNA. They are managed in GNA.

For details on setting up a deployment and connection key for your primary datasource, refer to the *Govern Deploy EZ* guide. For details on creating

connections keys for your secondary datasources, refer to the *Govern New Administration Application (GNA) guide.*

Logging In To the Govern BED

The Authentication Mode for the BED is defined in Govern Deploy EZ, with the other Govern applications in your deployment. It can be either of the following:

- **Govern**: With this Authentication mode, the user needs a Govern user name and password and is authenticated against the Govern user table: USR_USERFILE.
- **Microsoft Active Directory (MSAD)**: This is the default. It requires prior setup to integrate the Active Directory user and group accounts with the Harris Govern applications. User information is maintained in Active Directory and users log in with their Windows user name and password.

Refer to the Govern Deploy EZ and Govern New Administration (GNA) guides for more information.

Starting the Govern BED

Launch the *Business Entity Designer* (BED) from the **Govern** > **Business Entity Designer** program link in the *Windows* Start menu or from a desktop shortcut:

If you are running MSAD Authentication, you are automatically logged in with your Active Directory user name and password.

If you are using Govern Authentication:

1. At the login window, enter your assigned *Username* and *Password.*
2. Click **OK** to start the program.

   If an incorrect username or password is entered, an error message is displayed;
3. Click **OK**, and enter the correct information.

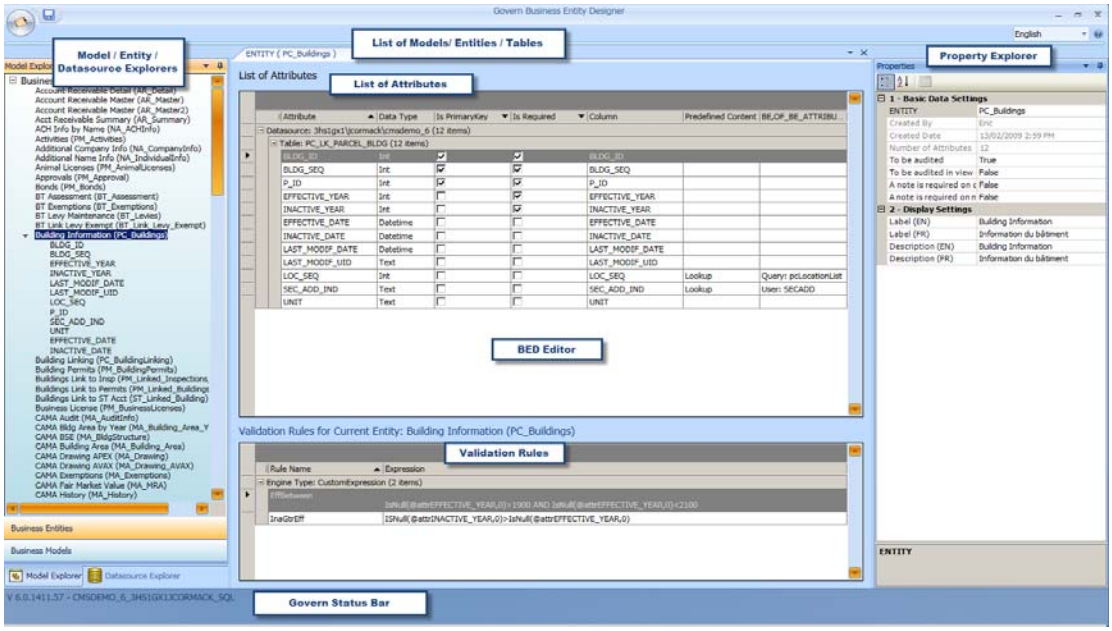
Note: After three failed attempts to enter the correct login credentials, the login screen and application shut down.

Chapter 2: The Business Entity Designer (BED) User Interface (UI)

Overview

The Business Entity Designer (BED) User Interface (UI) provides a central window for accessing your datasources and integrating your data with Govern.

Like all applications in the Govern OpenForms Product Suite, it follows the Microsoft Office 2010 Fluent UI standard, replacing the menus and toolbars with a ribbon and contextual tabs. The main components can be moved from their default location to a preferred location in order to meet your desktop requirements or to match your personal style.



This chapter provides a brief overview of the default interface describing:

- BED UI Components on page 8
- Customizing the BED User Interface (UI) on page 19

BED UI Components

This section describes the following features.

Note: The default view of the interface is presented in the examples throughout this guide.

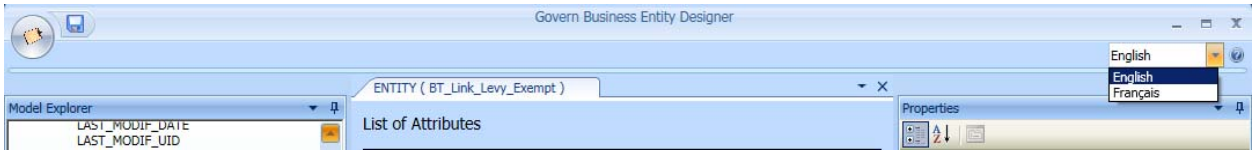
New Features

The Govern BED has a new look and feel.

- A new type of grid is displayed in the BED Editor.
- You can select the columns that you want to show in the grid.
- You can change the sort order of the fields.
- If an attribute contains a lookup or calculated field, this is indicated in the grid.

Language Selection List

From the Language Selection drop-down list, located at the top-right of the title bar, you can switch the language on the interface between English and French for the BED interface.



Govern Suite Button

The Govern Suite button is located at the top-left of the BED UI, beside the **Save** button. Currently, it has one item: **Exit BED** for exiting the application.

Saving Data

Before exiting the BED, be sure to save all modifications made to the Business Entities and Models. To save, click the **Save** button located beside the Govern Suite button at the top of the interface. A green dot in the bottom-right corner of the UI indicates that the data are saved correctly.

Exiting

To quit the Business Entity Designer, select the Govern Suite button. Then, select **Exit BED**. Alternatively, double-click on the Govern Suite button to exit the application. If modifications were made, but not saved, a confirmation message appears.

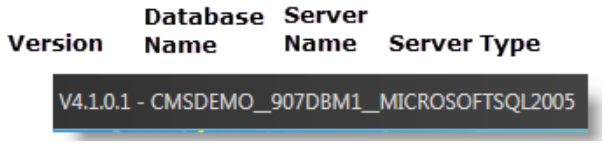
Click **Yes** to save modifications, **No** to exit without saving.

BED Status Bar

The BED Status Bar displays the Connection Key Name, Operation Status, and Windows system information.

Connection Key Name

The name of the connection key to your primary datasource, selected in the Datasource window, is displayed at the bottom of the application window.



This Connection Key Name comprises the datasource name, the datasource server name, and the datasource type. The connection key provides access to your datasource from Govern applications. It is generated by Govern Deploy EZ when you configure your deployment. *For details, refer to the Govern Deploy EZ guide*.

You can also create connection keys in GNA with the Connection Key Management utility.

The naming convention is datasource name, server name, followed by the datasource type. *For further details, refer to the Govern New Administration (GNA) guide*.

Govern BED Version

The version of the Govern Business Entity Designer is displayed to the left of the Connection Key Name.

Operation Status

The status of the last operation is indicated on the right of the status bar. The green light indicates that the operation was successful.

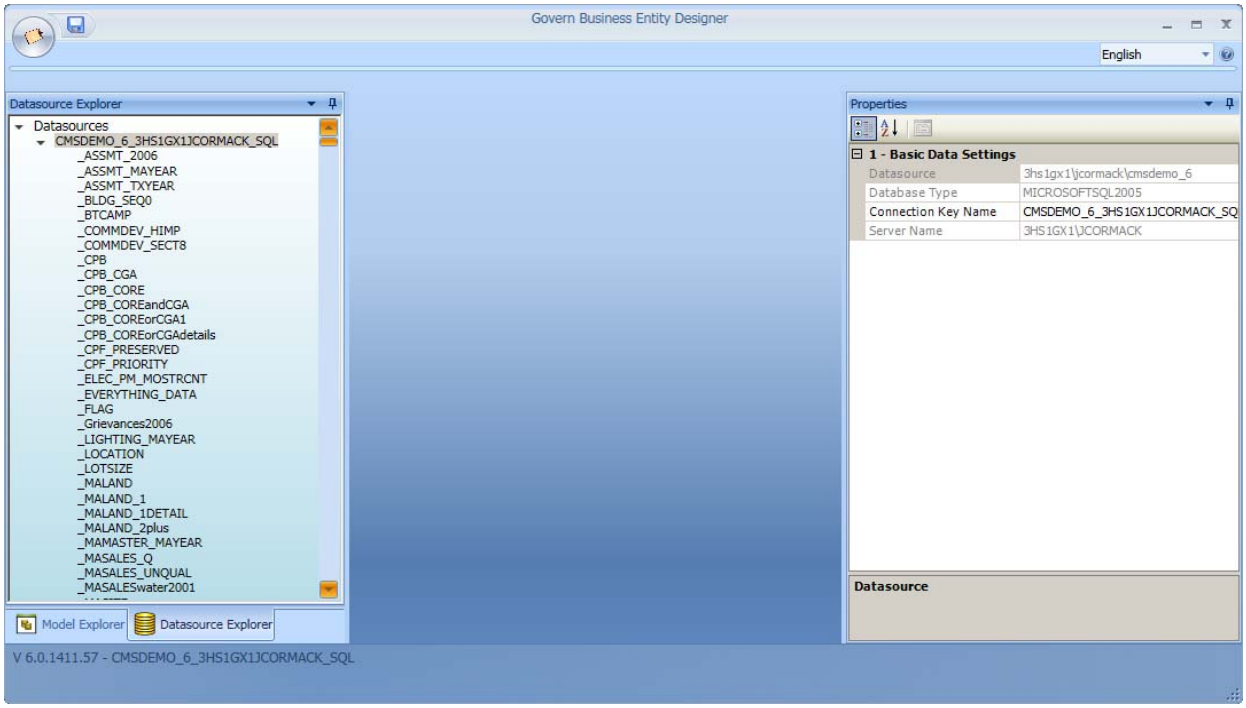
The Explorers

The Business Entity Designer (BED) has two explorers on the left. One is used for working with the datasource. The other is used for working with the business models and entities.

Datasource Explorer

The Datasource Explorer provides access to your datasources. You use this explorer for setting your primary datasource, and adding or deleting a secondary datasource. All the datasources to which you have a valid

connection key are accessible from this explorer. They are listed by Connection Key Name. You manage your datasources in GNA.



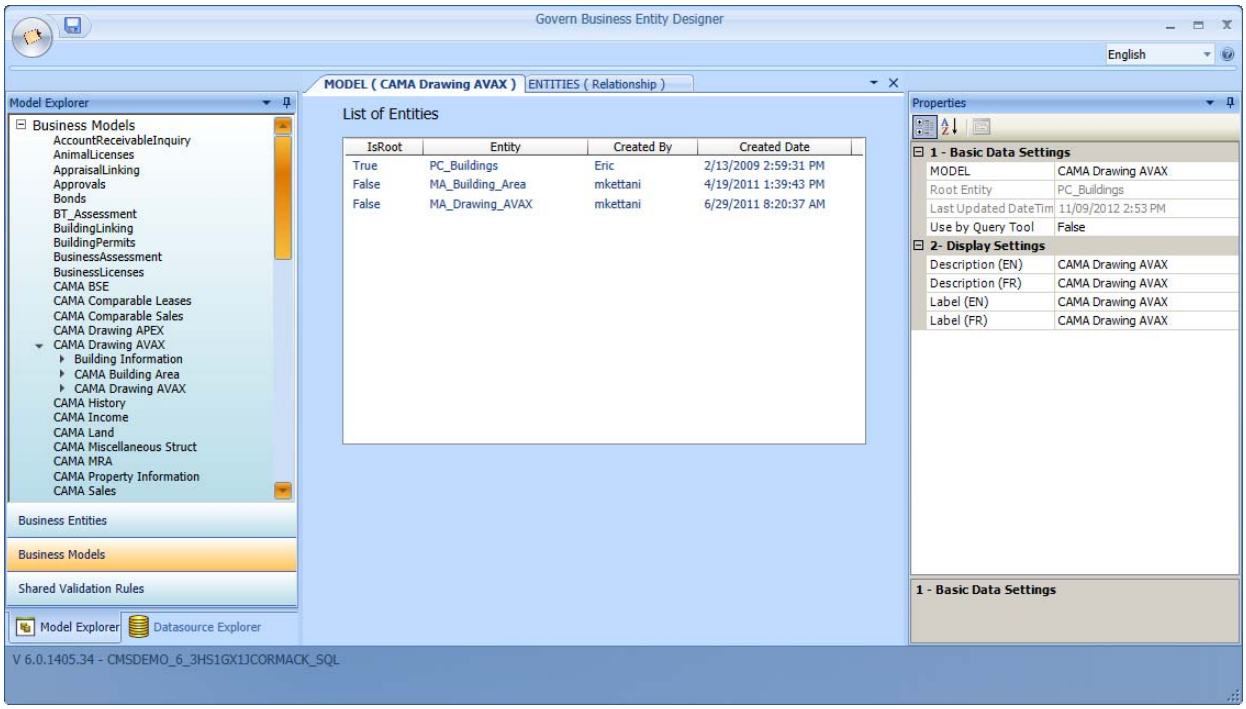
The first step, in getting started, is to add your primary datasource and as many secondary datasources as required, for your deployment. Once a datasource is added, you can display its properties or expand it to view the views, tables, and columns that it contains.

When you double-click on a table, it expands to display the datasource columns it contains.

The procedures for working with datasources are provided under *Managing your Datasources for the Deployment on page 28*.

Model Explorer

The Model Explorer has two sections: Business Entities and Business Models. By default, this explorer opens when you launch the Business Entity Designer.



From these tabs, you can create new components, or view and update the properties of existing ones. While you are within one tab, the other tabs remain visible and accessible.

When you select a business model, you can view its properties and the Business Entities that it contains. When you select a Business Entity within the Business Models, you can view properties on the entity. For details, see *Managing Business Models on page 101*.

Similarly, when you select a Business Entity, you can view its properties and the attributes that it contains. When you select an attribute, you can view properties on the attribute. For details, see *Managing Business Entities on page 38*.

Business Models and Entities / Attributes and Tables (Relationship)

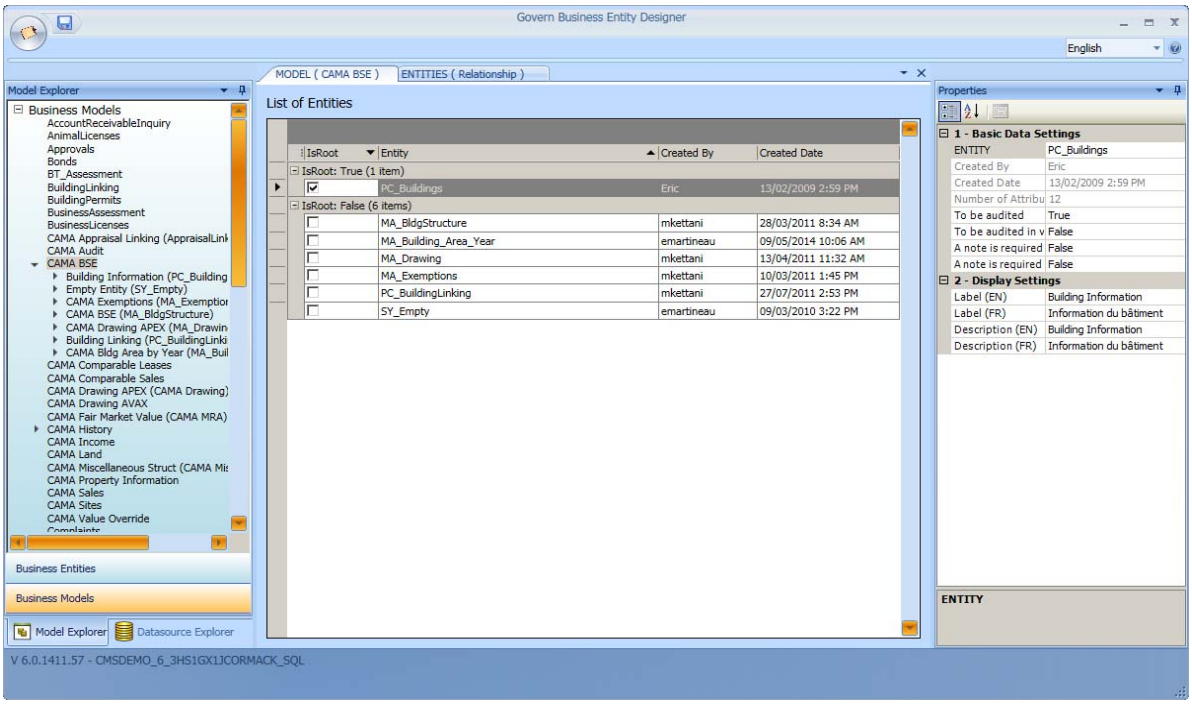
The center pane of the Model Explorer is displayed when you select a business model or entity in the tree view. It displays information on entities and entity relationships or attributes and table relationships, depending on what is selected.

Viewing the List of Entities

The Business Models section of the Model Explorer displays a Model tab in the center pane. This lists the entities in the selected business model. If more than one entity is included in the model, the Entities (Relationship) tab is displayed. This tab shows how the entities are linked.

To view the business entities included in a business model:

1. Launch the BED.
2. Select **Model Explorer** > **Business Models**.
3. Select a business model in the tree view.
4. Select the **Model** tab if it is not already open.



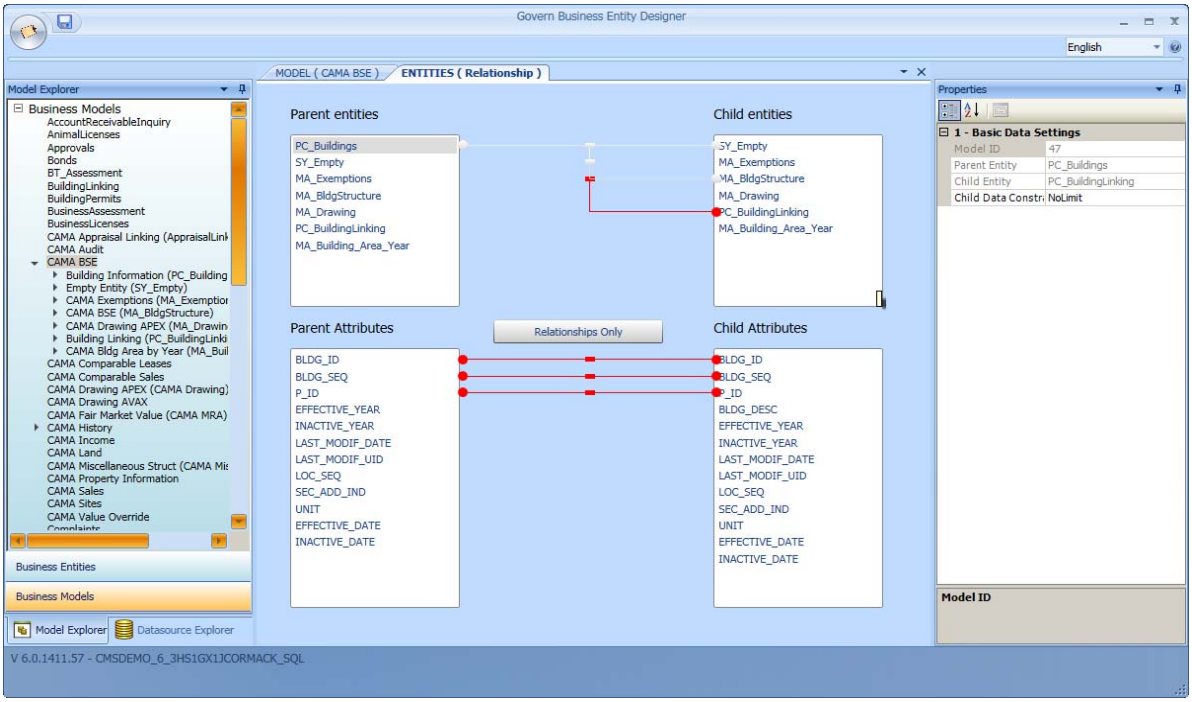
The entities included in the selected business model are displayed in the center pane. They are listed according to whether they are the Root Entity, the entity name, and the user name of the person who created the entity with the date and time. you can change the sort order of any of the columns, or remove any columns that you do not need to display. You can also show the ID column. This is really only useful for Harris Govern staff for troubleshooting. *See Properties Explorer on page 17*.

Viewing the Relationships Between Entities

The Entities (Relationship) tab is present if the model has more than one entity This tab displays the relationship between the entities.

To view the relationship between entities:

1. Launch the BED.
2. Select **Model Explorer** > **Business Models**.
3. Select a business model in the tree view.
4. Select the **Entities (Relationship)** tab.



The center tab displays four list boxes two on the left and two on the right:

- **Parent Entities / Parent Attributes**: All entities within the model are displayed in the Parent Entities section. When you select an entity, its attributes are displayed in the Parent Attributes section.
- **Child Entities / Child Attributes**: All entities with the exception of the selected entity are displayed in the Child Entities section. When you select an entity in the child entities section, its attributes are displayed under Child Attributes.

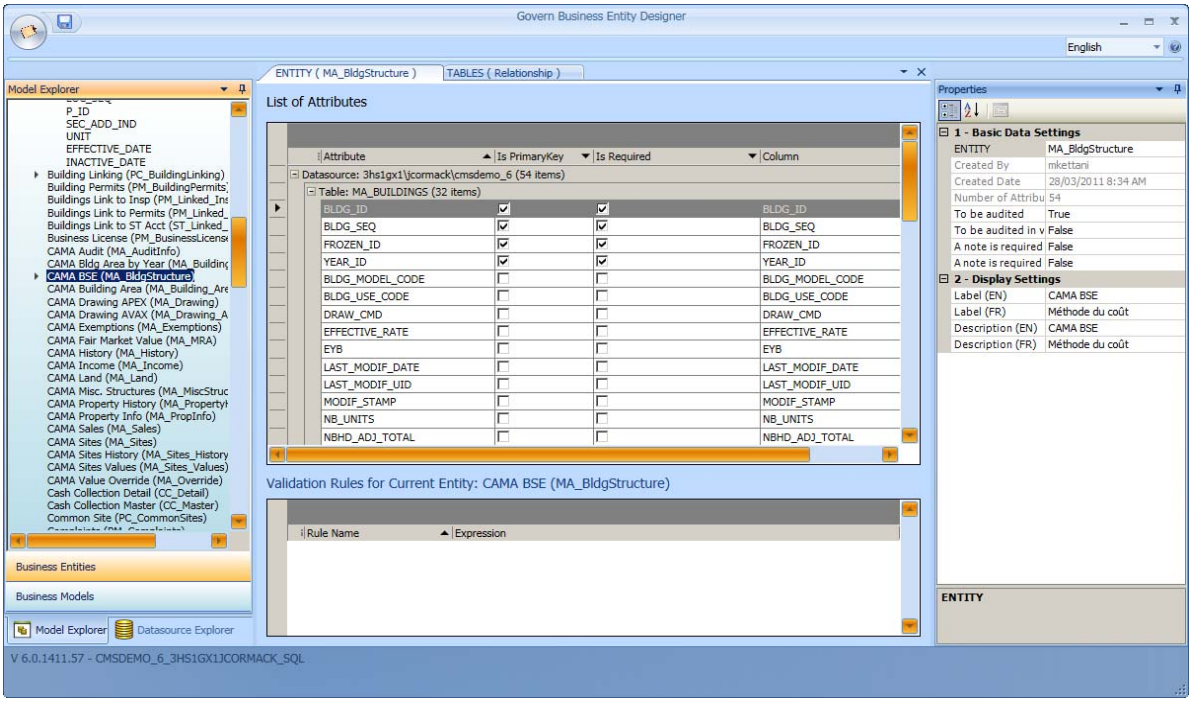
Parent and Child Entity Relationships: The relationship between the parent and child entities is shown by a red line for the primary relationship and gray lines for the secondary ones. For more information, see *Managing Business Entities on page 38*.

Viewing the List of Attributes and Table Relationships

The Business Entities section of the Model Explorer displays the Entity tab. This tab lists the attributes included in the selected entity. If there is more than one table in the business entity, the Tables (Relationship) tab is displayed. This shows the relationship between the tables.

To view the attributes included in a Business Entity:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select a Business Entity in the tree view.
4. Select the Entity tab if it is not already open.



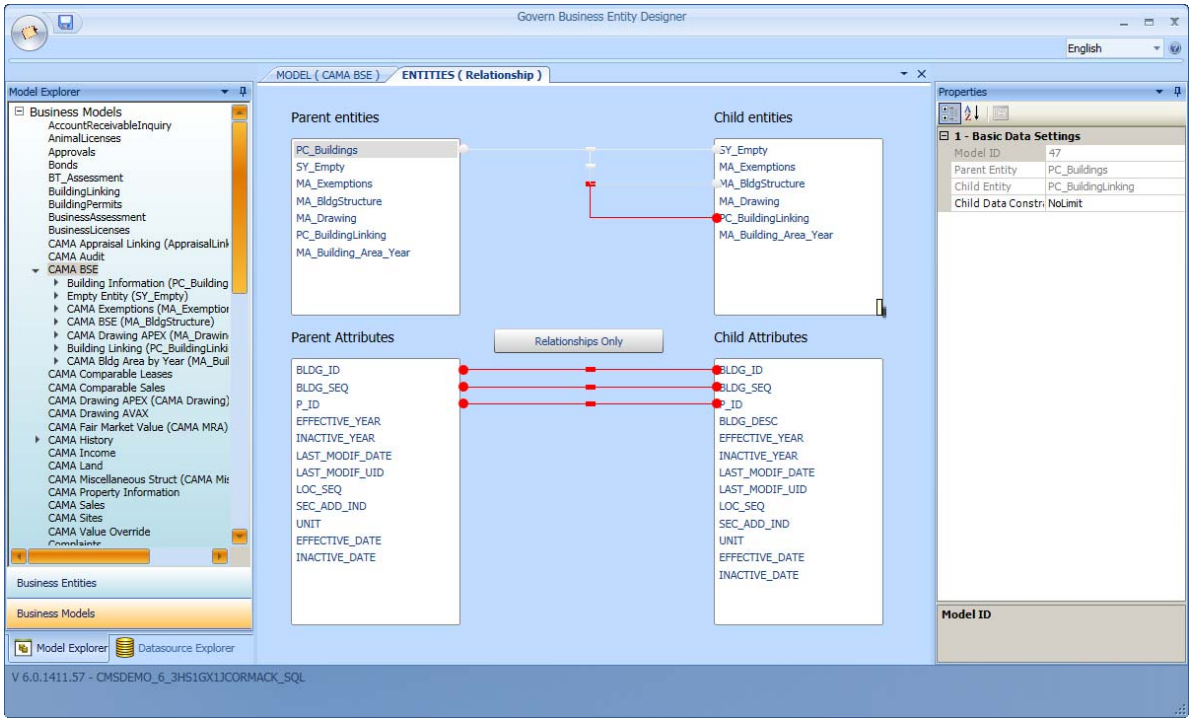
The attributes included in the selected Business Entity are displayed in the center pane. The key properties are displayed along the top. These indicate

the name of the attribute: whether or not it is a required field; whether or not it is mapped to the primary key; the data type; and the datasource, table, and column to which the attribute is mapped. For more information on Business Entity properties, see *Properties Explorer on page 17*.

The Tables (Relationship) tab displays the links between the datasource tables.

To view the links between the datasource tables:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select a Business Entity in the tree view.
4. Select the **Tables (Relationship)** tab.



The center tab displays information in four sections, divided as follows:

- **Parent Tables**: All datasource tables to which the attributes in the entity are mapped are displayed in the Parent Tables section.

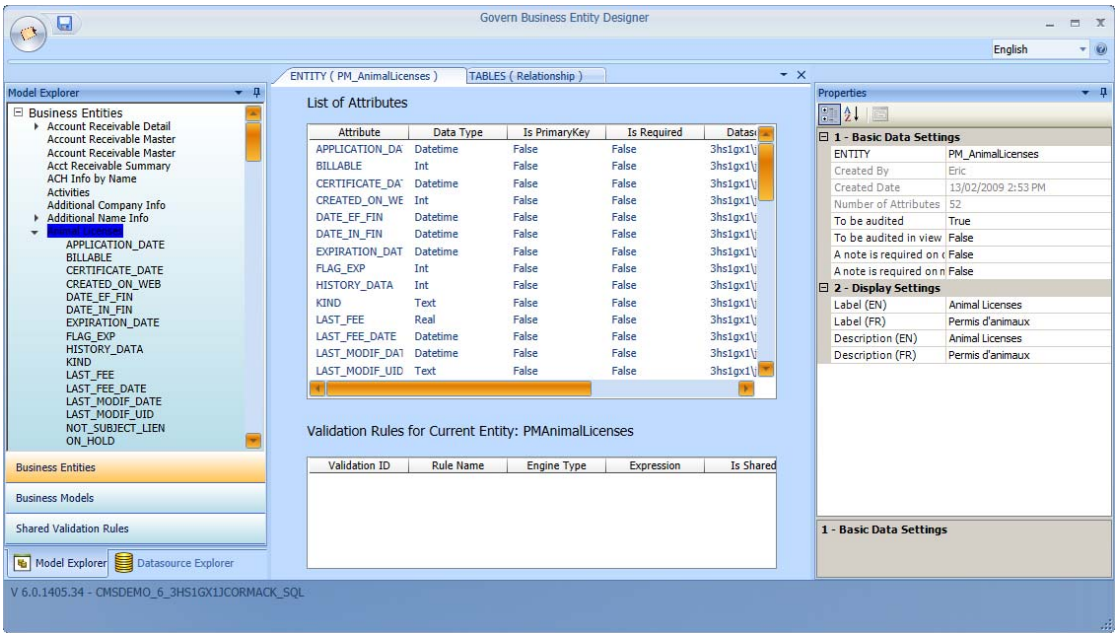
- **Parent Columns**: The columns within the selected table are displayed in the Parent Columns section.
- **Child Tables**: All tables with the exception of the selected table are displayed in the Child Tables section.
- **Child Columns**: When you select a table in the child tables section, its columns are displayed under Child Columns.

Table Relationships: If there is more than table in the entity, the relationship between parent and child tables is shown by a red line for the primary relationship and gray lines for the secondary ones.

The **Relationships Only / All Fields** button toggles to display all columns in the selected tables or only the columns that are used to link tables. For more information, see *Managing Business Models on page 101*.

Properties Explorer

The Properties Explorer is located on the right side of the interface. It provides details on the selected component.



- In the Datasource Explorer, this explorer displays the properties on the selected datasource, such as the name, server, type, and connection key name. See *Managing your Datasources for the Deployment on page 28*

for details.

- In the Model Explorer, Business Models, this explorer displays properties on the selected business model or business entity. By selecting the Entities (Relationship) tab at the top of the center pane, you can view the properties on the relationship between entities such as the Parent and Child Entities and the Child Data Constraint. See *Managing Business Models on page 101* for details.
- In the Model Explorer, Business Entities tab this explore displays the properties for the selected business entity or Attribute. Select the **Tables (Relationship)** tab at the top of the center pane to view information on the relationship between tables, such as the Parent and Child Tables, and the Join type. See *Managing Business Entities on page 38* for details.

Changing the Sort Order

By default, properties are listed by category. You can change this to list properties alphabetically if this is your preference.

 Select the **Alphabetical Sort** icon to display properties alphabetically.

 Select the **Categorized** icon to display properties categorically.

Modifying the Properties

Details on modifying the properties are provided in the chapters on integrating datasources, and managing business entities, models, attributes, and validation rules.

Customizing the BED User Interface (UI)

You can customize the Business Entity Designer UI to meet your desktop requirements or to match your personal style so that it becomes more intuitive for you.

- Resizing the Window
- Changing the Position of the Tabs
- Repositioning the BED Components
- Model / Datasource Explorer and Properties Icons
- Models / Entities / Attributes / Tables Navigation Icons
- Using the Diamond Docking Guide

Resizing the Window

You can resize the main window of the BED interface or any of its panes. It includes the Minimize, Maximize, and Resize buttons familiar to users of Windows applications.

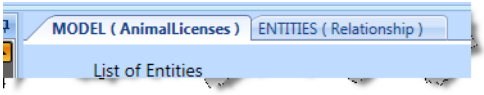
As is the standard for Microsoft Windows, you can resize the Business Entity Designer UI window diagonally, horizontally, or vertically by positioning the mouse along an edge of the window and dragging to the preferred size. This applies to each of the panes.

Changing the Position of the Tabs

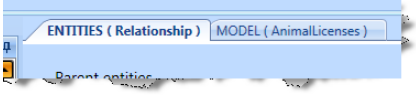
By default the Model Explorer is on the left and the Datasource Explorer is on the right. To change this, select one Explorer and drag it to the alternate position.

This also applies to the center pane. You can change the position of the Entities / Tables (Relationship) tabs in the Business Entities pane and of the Model / Entities (Relationship) tabs in the Business Models pane. This is illustrated in the following series of screen shots:

From the default:



To a new position:



In the default position, the Model is on the left. The screen shot shows the Animal Licenses model on the left of the tab. This is reversed in the screen shot on the right.

Repositioning the BED Components

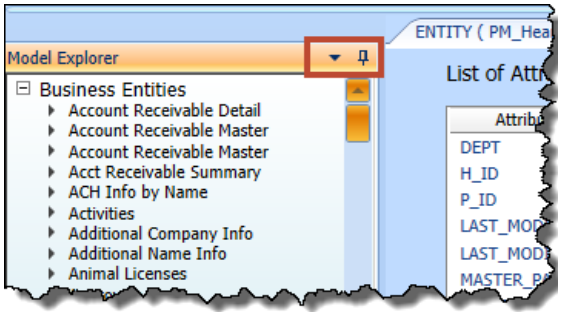
You can detach any pane in the BED, including the Model Explorer, the Datasource Explorer, the Properties window, the List of Attributes / Entities, and the Tables pane and move it to your preferred location. This can be anywhere on your computer screen or on a secondary screen.

As with all applications in the Govern OpenForms product suite, you can detach the panes and move them to a different location. You can reposition the panes by dragging and dropping them or using the icons.

This is described in the following sections and in the scenario at the end of the chapter, When you detach a pane, a preview pane is displayed and the diamond docking guide is displayed on the BED UI. You can also move the pane off the BED to any other location on your computer screen or on a secondary screen

Model / Datasource Explorer and Properties Icons

The title bars of the Model and Datasource Explorers and the Properties windows include a drop-down arrow and a pin.



The drop-down arrow in these sections displays the following menu items Floating, Dockable, Auto Hide, and Hide. These options provide one way of customizing the interface.

Floating: You can move any pane on the BED interface. Just select its title bar and drag it to another location. The **Floating** option adds the following functionality:

Moving the Explorers Separately

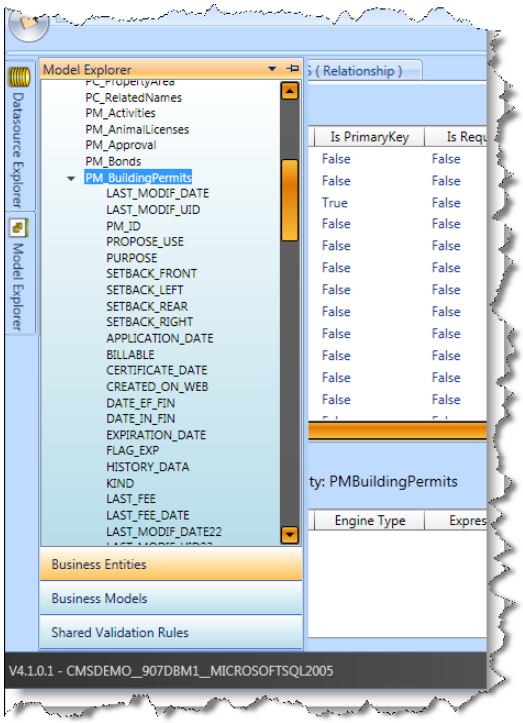
Select **Dockable** If you want to move the Datasource and Model Explorer together. Select Floating if you want to move them independently from one another.

Dockable: This is the default option.

Select **Dockable** if you want to move the Model Explorer and the Datasource Explorer together.

You could also move the Properties window over to the Explorers window as described under *Using the Diamond Docking Guide on page 23*. Then, select **Dockable** from any of the three tabs to move all three panes together.

Auto Hide and Pin Icon : Select the **Auto Hide** option or click on the pin to dock the selected tab to the top-left of the BED.



The screen shot on the left shows the Datasource and Model Explorer tabs in Auto Hide position, with the Model Explorer open. This may make it easier to switch between Explorers without scrolling or provide more room at the bottom of the interface.

The Auto Hide is a toggle. To restore the pane to its previous position, you can reselect the Auto Hide button from the drop down menu. Other ways to achieve the same result are to:

• Double-click on the toolbar.

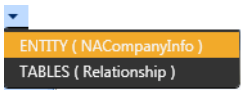
• Click the pin in its horizontal position: It then changes to the vertical position . and the pane is realigned vertically.

Hide: The Hide option is not available in the current release.

Note: To restore any pane to its last configuration, double-click on the title bar or reselect the menu item.

Models / Entities / Attributes / Tables Navigation Icons

The center pane of the interface displays information about the business models, entities, and tables, depending on what is selected. It has two icons: a drop-down arrow and an X.

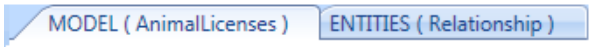


The drop-down arrow displays a menu containing both tabs. Select a tab to bring it into focus.

Select the X to close the tab currently in focus.

Business Models

When the Business Models tab is selected in the Model Explorer, the center pane displays details on the selected business model.



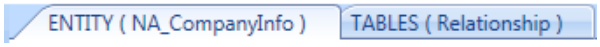
The center pane has two tabs. One displays details on the business entities within the business model. The other displays information on the relationships between the entities within the model.

Details on each entity include the name, whether or not it is the root entity, the name of the person who created it, and the date it was created.

Details on the relationships include lists of the Parent and Child Entities, and the Attributes within each Entity. They shows the relationship between the entities and attributes used to make the connection. *For details, see Creating Links Between Business Entities on page 111*.

Business Entities

When the Business Entities tab is selected in the Model Explorer, the center pane displays details on the Business Entity.



The center pane has two tabs. One displays details on the Attributes within the Business Entity. The other displays information on the relationships between the tables to which the attributes are mapped.

Details on each attribute include the name, type, whether or not it is the primary key or required, and the data mapping.

Details on the relationships include lists of the Parent and Child Tables, and the Columns included in each table. They show the relationship between tables and columns used to make the connection. For further details see *Creating Links Between Tables in a Business Entity on page 51*.

Using the Diamond Docking Guide

Any pane in the Business Entity Designer can be repositioned by selecting it by its title bar and dragging it from one position to another. When you start to drag a pane, a dark rectangle appears on the screen. This is the Pane Preview. An overlay appears, displaying arrows in each key position, one on the top, bottom, right and left, with a group of four in the center. This overlay is referred to as the Diamond Docking Guide.

The Diamond Docking Guide aids in positioning the interface. When the mouse is directly on top of one of the arrows, the Pane Preview expands to the size and shape of the repositioned window. The pane becomes docked in the new position.

You can also drop the pane anywhere on the interface. This pane is considered a Floating window.

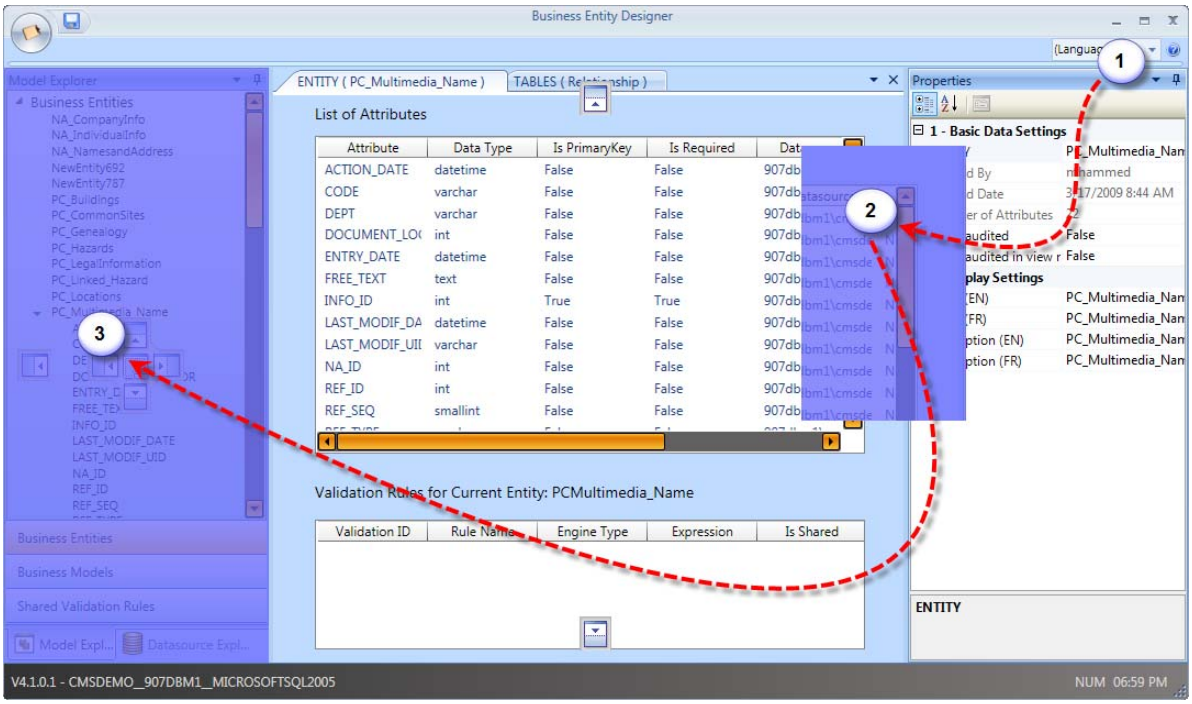
Scenario: Moving the Properties Window to the Explorers

The first part of this scenario demonstrates how to move the Properties window from the default position on the right to the Explorers on the left. In the second part, it demonstrates how to move the three panes together and finally in the third part how to detach one pane and reposition it as a floating window.

Moving the Properties Pane

To move the Properties pane:

1. Launch the BED.
2. Select the title bar of the Properties window in its default position on the right.
3. Begin to drag the window over to the Explorers on the left.

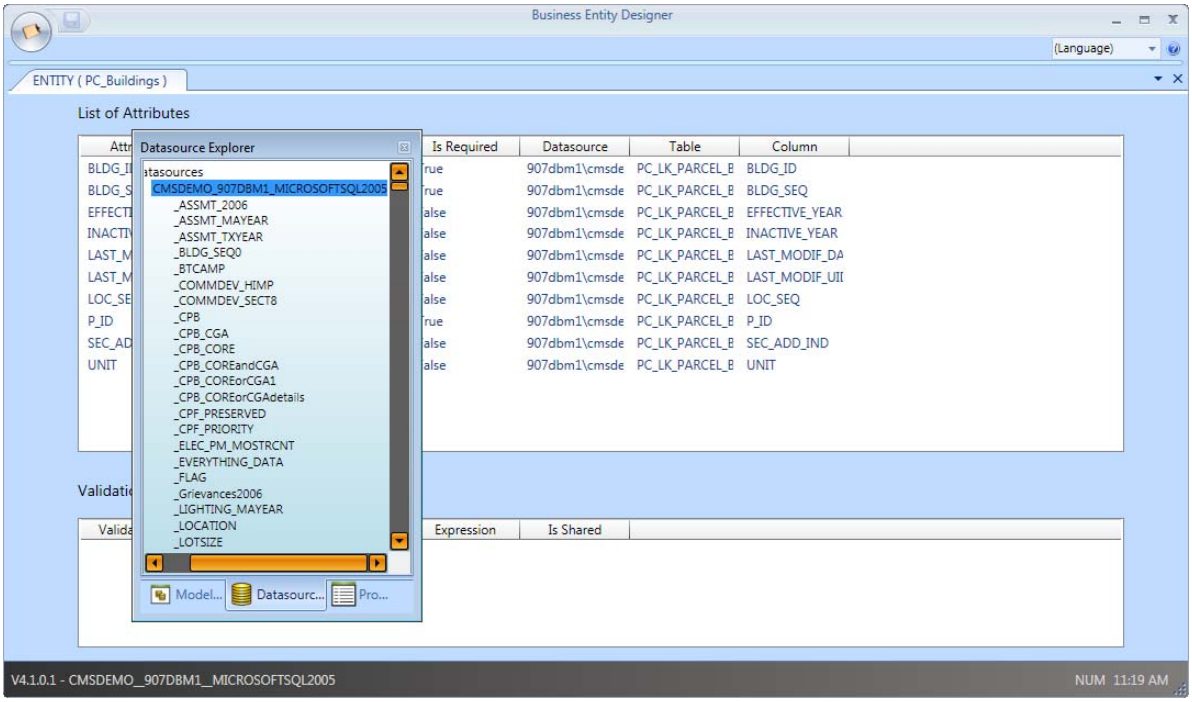


4. Position the window on top of the center arrows. The Properties window will expand to its full size.
5. Release the mouse. You can now move both Explorers and the Properties window as a unit.

Moving all Panes Together

To move all panes as a unit:

1. Select the title bar of any one of the three panes.

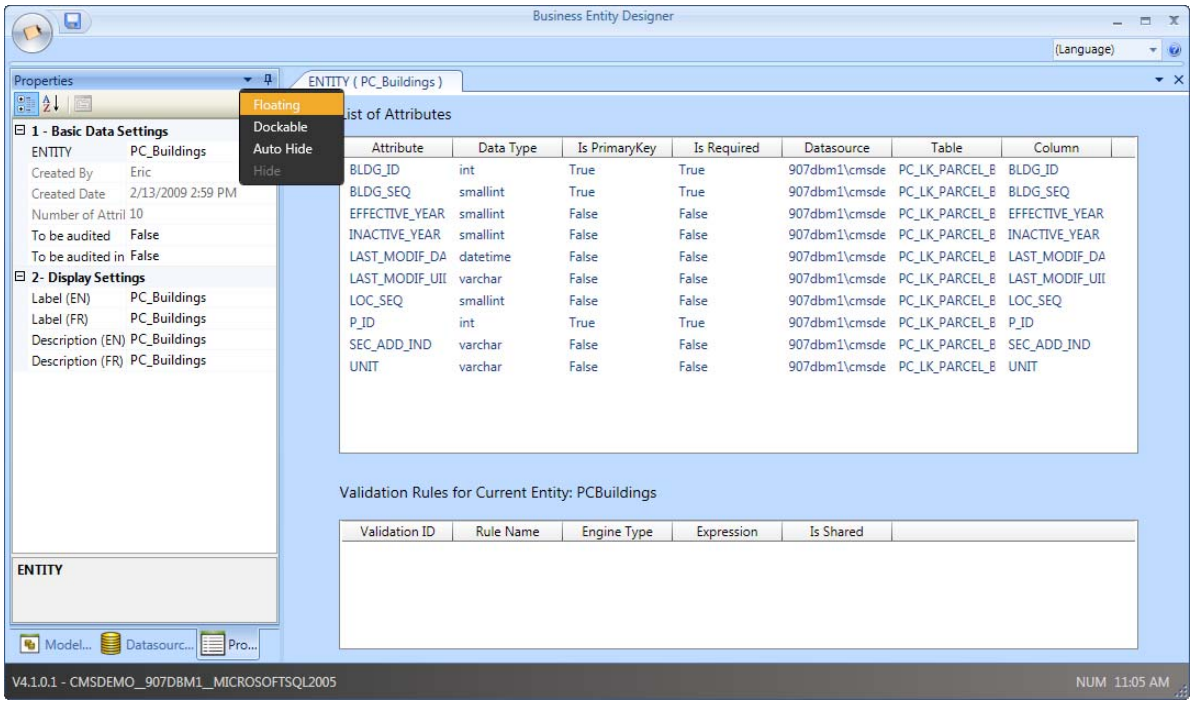


2. Drag it to a preferred location.

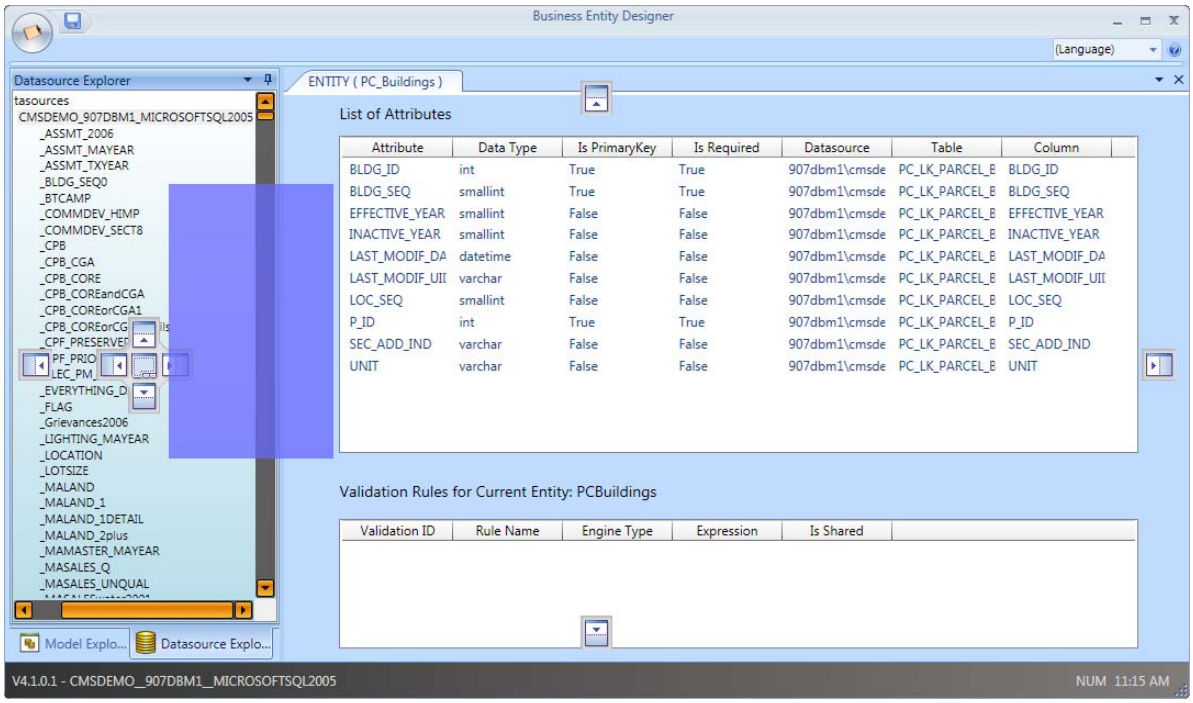
Moving the Properties Window Independently

To move the Properties window or one of the Explorers independently:

1. Select the tab of the pane you want to move to open it.
2. Click on the drop-down arrow on its title bar and select **Floating**.



You can then move the Properties pane independently from the Explorers.



Once the three panes are moved from their docked position, they are treated as a unit. You need to move them back to a docked position before you can separate them.

Restoring a Pane

To restore a pane to its previous docked position, double-click on the title bar.

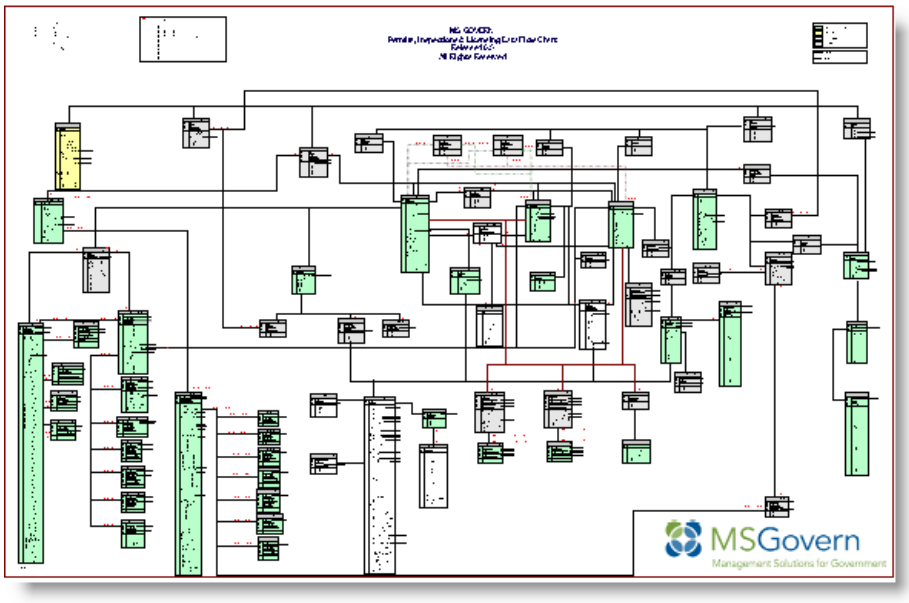
To move a pane to a new docked position, drag it on top of any arrow in the Diamond Docking Guide.

Chapter 3: Managing your Datasources for the Deployment

Overview

Your datasources are the starting point. The business models, entities, and attributes that you create in the Business Entity Designer are mapped to datasource tables and columns.

To facilitate the task of integrating the data in a meaningful way, it is helpful to be familiar with the layout and design of the datasources in your deployment. *For details on the database structure, refer to the MS Govern Data Flow Charts that are shipped with the software*.



Tip: The preceding screen shot shows the pdf version of the *Permits, Inspections & Licensing Data Flow Chart*. If you use the Microsoft Visio versions, you can update the charts to accommodate any modifications or customizations.

When you create your deployment through Govern Deploy EZ, the connection key to your primary datasource is added to the BED Datasource Explorer. This explorer is used for managing all the datasources in your deployment. You can add the connection keys to as many other datasources as required. These are

created in GNA. *For further details, refer to the Govern New Administration (GNA) guide*.

Once the connection keys are added to the Datasource Explorer, you are ready to launch the Model Explorer, begin creating business models, entities, and attributes and mapping them to columns within that datasource.

This chapter describes the following:

- Datasource Explorer
- Adding Another Datasource
- Refreshing Your Connection Key List
- Removing a Datasource
- Viewing and Configuring Datasource Properties

Datasource Explorer

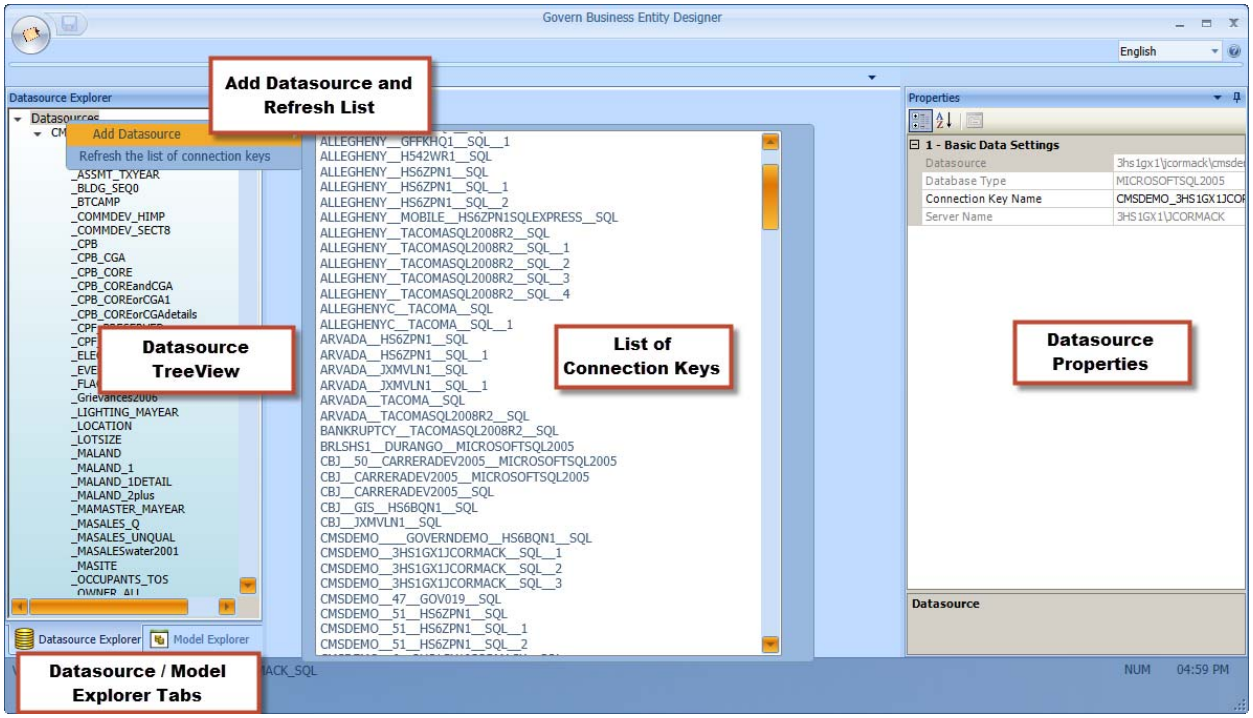
The Datasource Explorer is used for managing the datasources required for the deployment.

One datasource is defined as the primary datasource. Each datasource that you add to the Explorer is listed in a tree view. You can double-click on a datasource to expand it and view the tables it contains. Then, you can expand a table to view its columns. The properties for the datasource are displayed in the Properties window on the right, when you select a datasource.This provides details on the name of the datasource, the database type, and the connection key name.

If you are adding datasource tables and columns from a secondary datasource, you select them in the Datasource Explorer and drag them to the applicable Business Entity. This is described under *Managing Attributes on page 58*.

To view the Datasource Explorer, launch the BED and select the **Datasource Explorer** tab.

Datasource Explorer Quick Tour



The Datasource Explorer includes the following features:

- **Datasource / Model Explorer Tabs**: The tabs to open the Datasource and Model Explorers are located at the bottom left of the interface.
- **Connection Key Name**: The Connection Key Name of your primary datasource is displayed along the bottom of the BED window.
- **Add Datasource**: The Add Datasource button displays a list of the connection keys to all your valid datasources. Select your primary datasource and any required secondary datasource from the list.
- **List of Connection Keys**: This list box displays a list of all connection keys to your valid datasources. You can create the connection key to your primary datasource when you run Govern Deploy EZ for the first time in your deployment. You need to create connection keys to your secondary datasources through the GNA Connection Key Management utility. For details, refer to the Govern Deploy EZ and to the *Govern New Administration Application* guides.
- **Refresh List of Connection Keys**: This option forces an update of the connection key list. It can be useful when new keys are created.

- **Datasource Tree View**: The tree view displays the datasources that you added to the Datasource Explorer, with their tables and columns.
- **Datasource Properties Window**: The datasource properties displayed in this window provide basic information on the datasource.

These are described in more detail throughout this chapter.

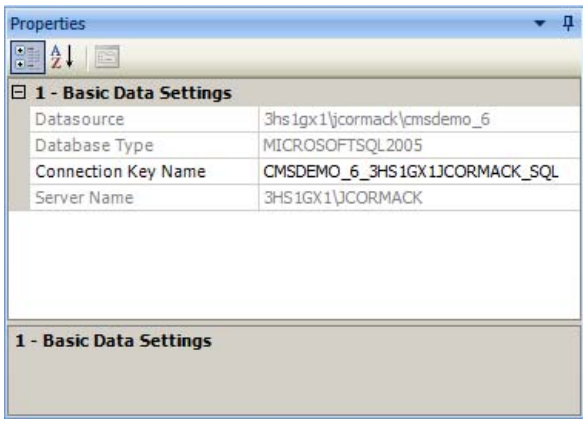
Viewing Datasource Tables and Views

Once a datasource is added, you can display its properties, as described in the next section, or expand it to view the views and tables it contains.

Views are listed first and are preceded by an underscore. Double-click on a view or table to expand it and display the datasource columns it contains.

Viewing and Configuring Datasource Properties

The following properties are displayed for each datasource under Basic Data Settings in the Properties explorer on the right of the Datasource Explorer. With the exception of the Connection Key Name, all properties are read-only.

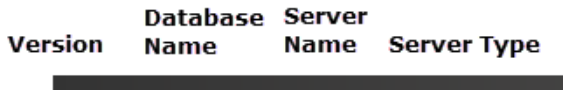


Tip: Drag the left border of the Properties window further to the left if some properties are not fully visible.

DATASOURCE: This property displays the name of the selected connection key. This provides access to the datasource and is made up of the following components.

- Name of the datasource
- Name of the server where the datasource resides
- Database server type, such as Microsoft SQL 2005

The name of the connection key to the primary datasource, used to create the majority of your Business Entities and Models, is displayed along the bottom of the application window.



Database Type: This property displays the name of the developer, model, and release of your relational database server, for example, Microsoft SQL Server 2000 or 2005. MICROSOFTSQL2005 is displayed for both Microsoft SQL 2005 and 2008. This property is generated from GNA.

Connection Key Name: This property displays the name of the connection key selected in the tree view on the left of the Datasource Explorer.

Server Name: This property displays the name of the server that hosts your datasource.

Adding Another Datasource

The connection key to your primary datasource is automatically added to the Business Entity Designer (BED) when you run Deploy EZ. This is the datasource to which the main business models and entities are mapped. You could add connection keys to other datasources if you are mapping tables and columns from them.

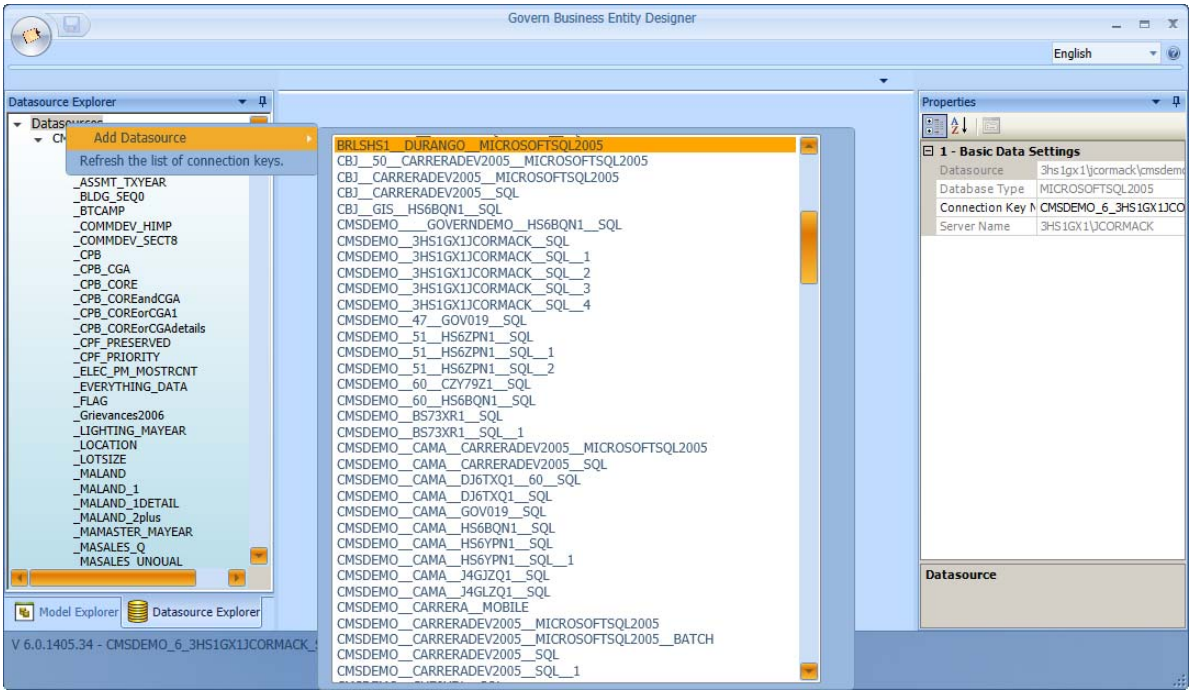
Note: All databases that you add to a Govern OpenForms version 6 deployment have to be version 6 database. You cannot run a version 5.1 database in a version 6.0 deployment. Similarly, you cannot run a version 6.0 in a 5.1 deployment.

For information on changing the connection key, see Changing the Connection Key, Changing the Datasource on page 34.

To add a datasource to the Datasource Explorer:

1. Launch the Business Entity Designer.

2. Select the **Datasource Explorer** tab.
3. Scroll to the top of the window and right-click on **Datasources**.



4. Select **Add Datasource**. This displays the list of all valid connection keys to the datasources in your deployment.
5. Select the connection key that links to your primary datasource.

   When you add a datasource, it is removed from the List of Connection Keys and added to the tree view on the left.
6. If you are adding several datasources, repeat steps 3 and 4 as required.

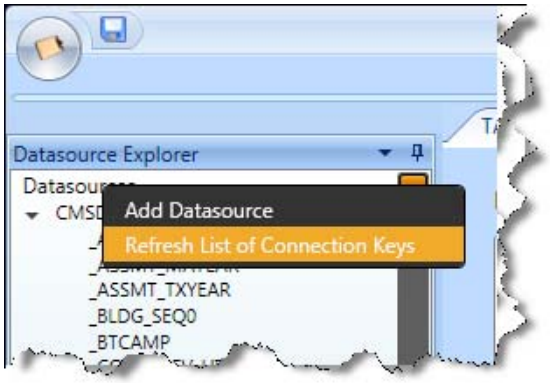
You can double-click on a datasource in the tree view and display the tables it contains. When you double-click on a table, its columns are displayed.

Refreshing Your Connection Key List

The Datasource Explorer Refresh updates the list of connection keys available in the Add Datasource list. When you create new connection keys in GNA, they may not immediately appear in this list. By selecting the **Refresh Connection Key List** option, you force an update.

To refresh your connection key list:

1. Launch the BED.
2. Select the **Datasource Explorer** tab.
3. Scroll to the top of the window.
4. Right-click on **Datasources**.



5. Select **Refresh List of Connection Keys** from the floating menu.

Changing the Connection Key, Changing the Datasource

All your valid connection keys are listed in the drop-down list. You can view details about them in the Connection Key Management utility in GNA. For details, refer to the *Govern New Administration (GNA)* guide.

You can change the connection key name by selecting an alternative key from the drop-down list in Connection Key property text box in the Datasource Explorer.

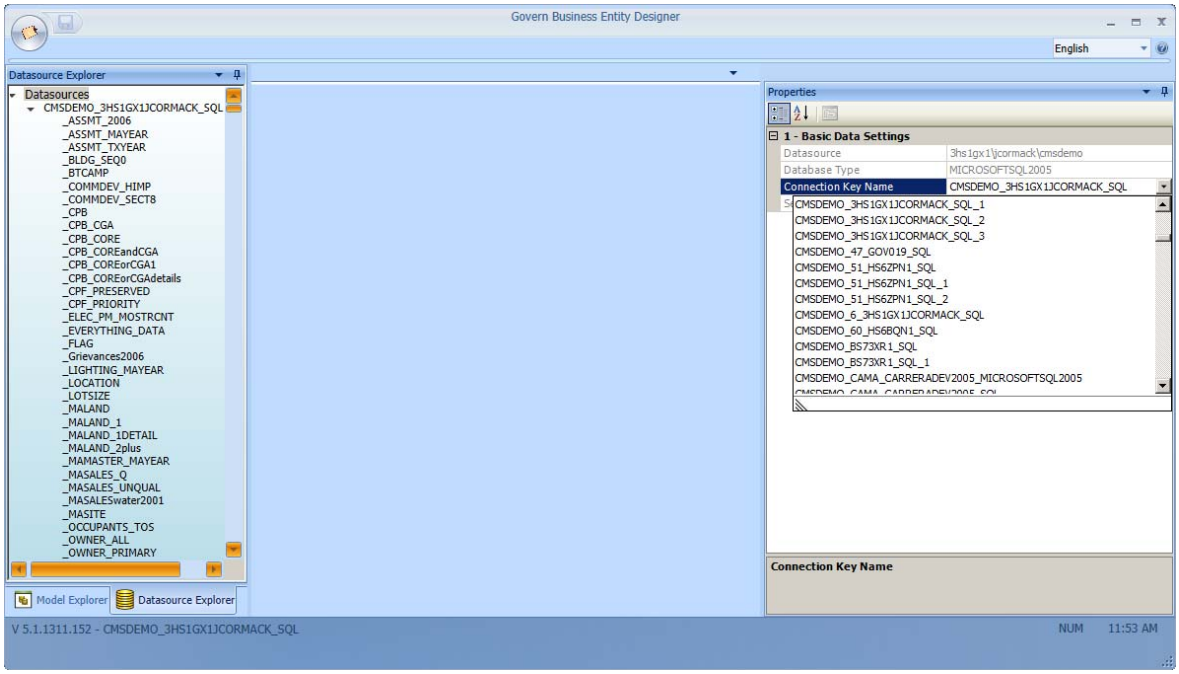
You may want to do this if you have two or more nearly identical datasources that you are using for different purposes and you want to switch back and forth between them, such as a database for testing and one for production.

You could create your original setup using the test datasource. Then, perform your tests. When you have finished testing, return to the BED and select the connection key to the production datasource. The mapping made for the test database is automatically transferred to the production datasource. For this procedure, the mapped columns must be identical in both datasources.

if you have a test and a production environment, you could use this property to change from the test to the production datasource when you have completed your setup and are ready to move to production.

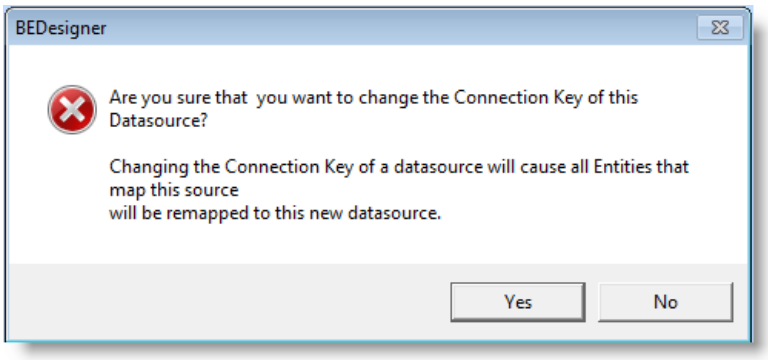
To change the datasource:

1. Launch the BED.
2. Select the Datasource Explorer.



3. Expand the **Connection Key Name** drop-down list.
4. Select the **connection key name** for the datasource that you want to use.

   A confirmation message appears:



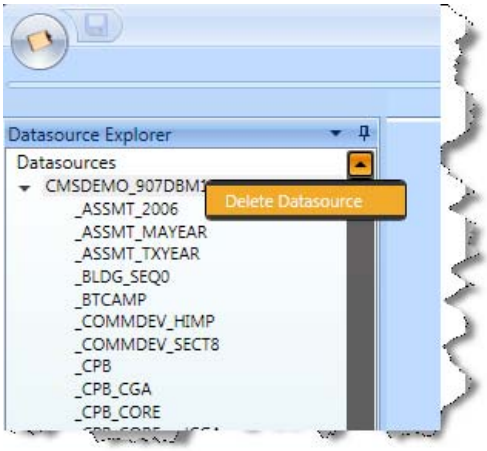
5. Click **Yes** to continue.

Removing a Datasource

You can remove a datasource from the Datasource Explorer if you no longer require any table or column that it contains. This removes it from the tree view and adds it back to the list of available datasources or list of connection keys.

To remove a datasource:

1. Select the **Datasource Explorer** tab.
2. Scroll to the top of the window.
3. If you do not see the list of your datasources, click on the "+" beside **Datasources** to expand the list.
4. Right-click on the datasource that you want to remove.



5. Select **Delete Datasource** from the floating menu.

A confirmation message appears.

6. Click **Yes** to continue the deletion.

If business entities are mapped to the datasource, you cannot delete it.

Chapter 4: Managing Business Entities

Overview

The business entities are used for grouping the attributes together. When you create an entity, you begin by naming it and then adding one or more database tables or database views to it. You can include stand-alone attributes that are not mapped to a table. You can also create attributes that are mapped to other database tables. The tables and views in an entity can be from one datasource or from multiple datasources. There is a lot of flexibility. How you build an entity depends on what you want to achieve.

In Govern, the data entry forms are created from the business models and each entity is a separate tab on the form. The data entry fields are based on the attributes. With the exception of the stand-alone attributes, the attributes are mapped to database columns.

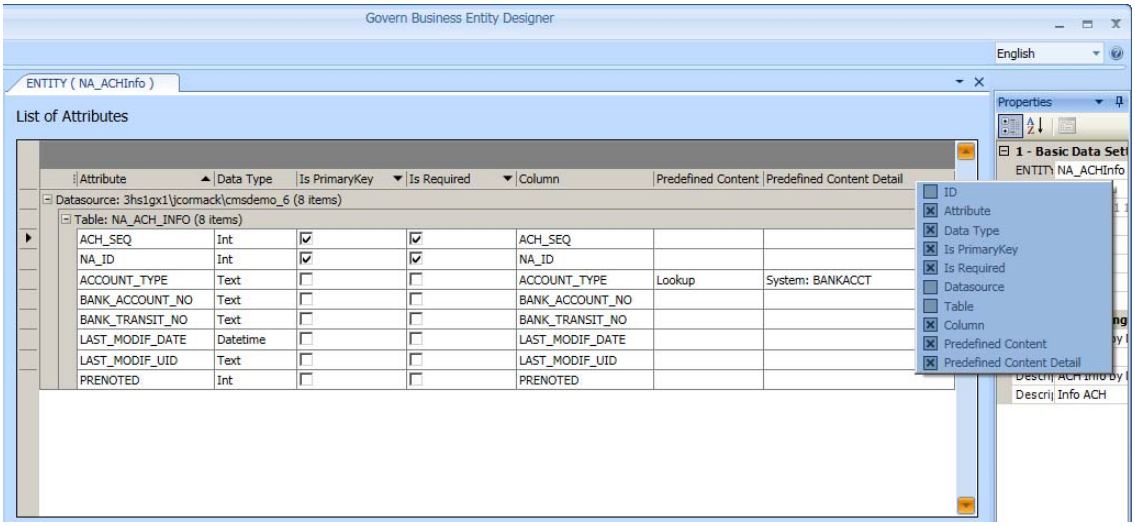
In the Govern QueryTool, each query is run on a single business model. Therefore, if you want to run a query on several model, they all have to be in the same model. You can create new business models for the QueryTool.

This chapter describes:

What's New

The grid in the center of the interface has been redesigned to make better use of the space available. When a business entity is open, information is listed as follows:

First by datasource, then by table, and finally by attribute. Attributes are listed by Primary Key and Required Key, then in alphanumerical order.



You can choose the columns that you want to show or hide. By default. the Attribute ID, Datasource, and Table columns are hidden. The datasource and table columns are only useful when the entity comprises multiple datasources and tables. The ID of the attribute can be useful for debugging purposes.

To show or hide a column, right click on the columns at the top of the list. Then select the column that you want to show or hide. If it was shown, it will be hidden. If it was hidden, it will be shown. You can click on any column to change the sort order from ascending to descending.

Refresh from Database

The **Refresh from Database** feature now provides more information. You can use this when there have been changes to the datasource and you want to import those changes to your models and entities in the Business Entity Designer. Now, when you click the Refresh from Database option, a list of the tables and attributes that were updated is displayed. *See Refreshing Values from the Datasource on page 48*.

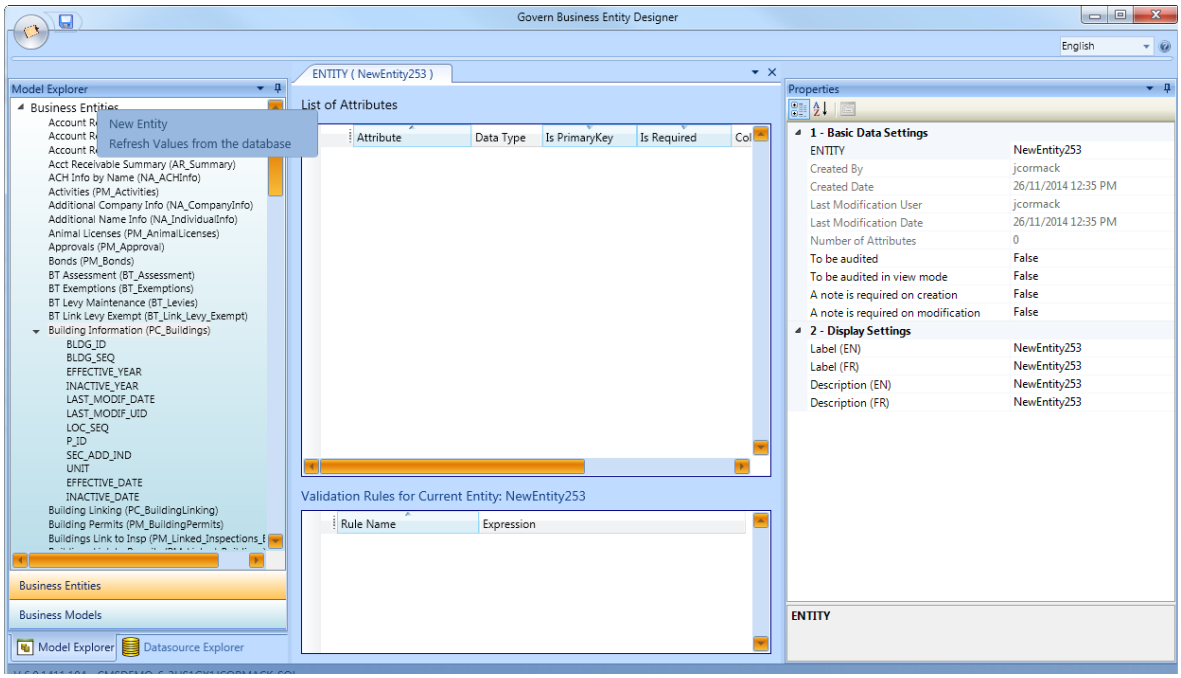
Creating an Entity

In order to build a business model, you need to create business entities.

To create a Business Entity:

1. Launch the BED.

2. Select the **Datasource Explorer** and verify the datasource name and connection key.
   - Ensure that the connection key is for the primary datasource.
   - If you are building a business entity from multiple datasources, ensure that all datasources are added to the Datasource Explorer.
3. Select **Model Explorer** > **Business Entities**.
4. Scroll to the top of the window.
5. Right-click on **Business Entities** at the top of the Model Explorer.
6. Select **New Entity**.



The new entity is assigned the name, **NewEntity**, followed by a system-generated number. This is created by adding one to the previous number.

This is displayed at the top of the BED Editor, at the Validation Rules editor, in the Entity, Label, and Description fields in the Property Explorer.

7. Enter a new name for the entity in the **ENTITY** field in the Properties Explorer.

Note: The name of the Business Entity cannot include a space.

8. Enter the labels and descriptions in the **Label** and **Description** fields.

9. Click **Save**.

The new entity is listed by Label in the Entity Explorer. The Entity Name is followed in parenthesis if it is different from the label.

Copying an Entity

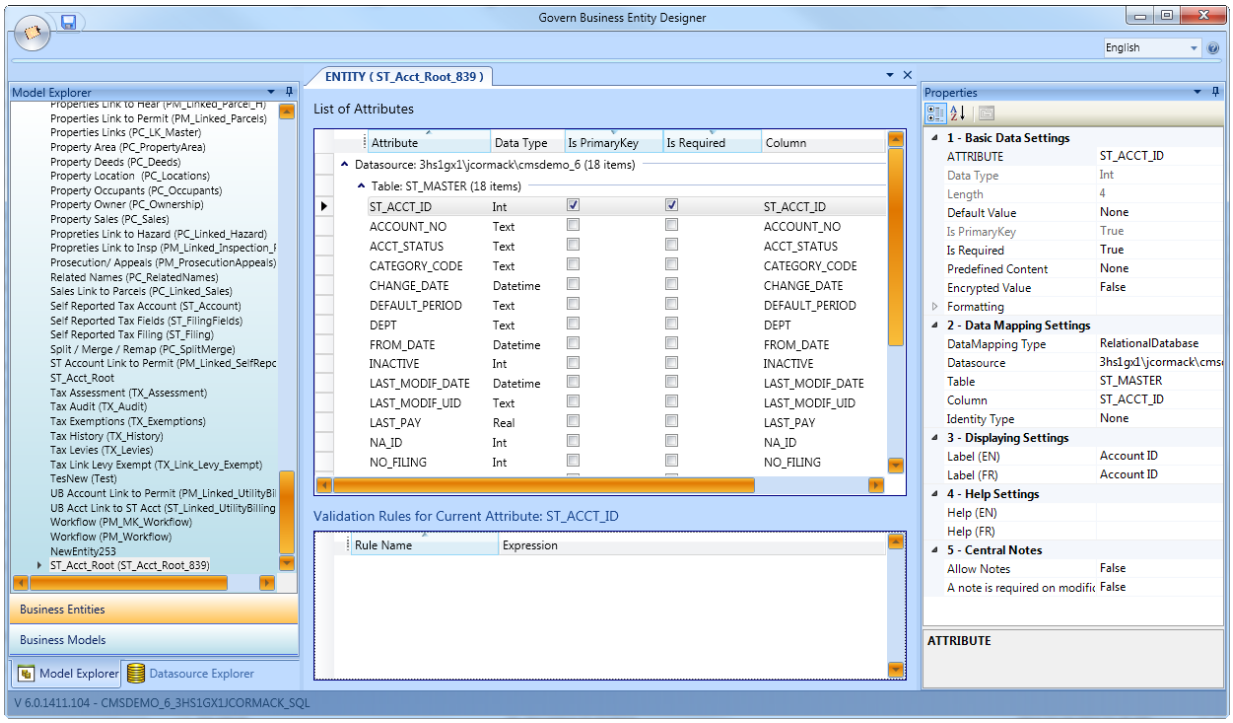
One way to create a new entity is by copying an existing one. This can be useful if you have two entities that are similar. It is very useful if you are customizing a Govern entity. You can create a copy of the default version. Make your modifications to the copied entity. That way, you can ensure that your changes are overwritten when you import new updated Govern models and entities.

To copy an entity:

1. Launch the BED.
2. Select the **Model Explorer** > **Business Entities**.
3. Open the entity that you want to copy.

   A confirmation message is displayed.
4. Click **Yes** to continue.

   The copied entity is displayed with a system-generated number.



5. Create a new name label and description for the copied entity.
6. Click **Save**.
7. Make your modifications.
8. Click **Save**.

Deleting an Entity

To delete an entity:

1. Right-click on the entity you want to delete.
2. Click **Delete** entity.

   A confirmation message is displayed.
3. Click **Yes** to continue.
4. Click **Save**.

Viewing / Updating Business Entity Properties

The Properties window is located at the right of the BED UI, in the default view. The following properties are available for entities.

Basic Data Settings

ENTITY: Displays the name of the Business Entity. When you create a new entity, this field displays an automatic name: NewEntity with a system-generated number. To modify this name, select the ENTITY property, overwrite the existing name, and click **Save**.

Note: The name of the business entity cannot include a space.

Created By: Displays the user name of the person who created the entity. This field is read-only.

Date Created: Displays the date that the entity was created. This field is read-only.

Last Modification User: Displays the user name of the person who made the last modification on the entity. This field is read-only.

Last Modification Date: Displays the date that the entity was created. This field is read-only.

Number of Attributes: Displays the total number of attributes in the current Business Entity, including those that are not mapped to a datasource column. This field is read-only.

To be audited: Select **True** to add the current entity to the Audit Trail, and create a record of all end-user actions. Otherwise select **False**.

To be view audited: Select **True** to add every end-user action to the Audit Trail. This includes every time a user selects the form or query to view data. Otherwise select **False**.

Central Notes

The Central Notes feature is available for all entities and attributes. By default, it is available and can be accessed on the left of the Govern OpenForms interface with the Govern IDs, and History Panel.

Central Notes can be required or optional. If you set the feature to required, it becomes similar to an audit trail. It is used for recording all modifications made to the entity or attribute on which it is set. If the feature is set to optional, it is used for recording additional information about the form or attribute.

Central Notes has multiple features in addition to saving notes and comments. The name of the user who made the modification is stored with the date and time. Notes can be made private or public. They can be searched. Several search filters can be applied, such as priority, history, or user name.

Two Notes fields are included in the Properties Explorer for Entities.

- **A note is required on creation**
- **A note is required on modification**

With these options, you can make Central Notes required when a form is created or when it is modified. If you set these options to **False**, Central Notes are optional for the entity. They are always available.

To make Central Notes required for an entity.

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select the entity for which you want Central Notes to be required.
4. Open the Properties Explorer.
5. Set **Note is required on creation** to **True** to make it required for the user to add a note when creating a new record.
6. Set **Note is required on modification** to make it required for the user to add a note when modifying a record.
7. Click **Save**.

The next time you launch Govern, the modifications appear on the applicable form.

Note: If Govern is already open, you need to close it and re-open before you see the modifications.

- If the user tries to save the form without adding an entry to Central Notes, a message appears.

In order to save the modification to the form, the user must:

1. Click **OK** the message.
2. Add an entry to Central Notes.
3. Click the **Save** button on the data entry form.

Display Settings

The display settings define how the Business Model is presented to the end-user.

Label (English / French): Enter the text to display for the Business Entity on the form.

Description (English / French): Enter a description to display with the Business Entity on the form, if required.

Adding Datasource Tables to a Business Entity

After creating a Business Entity, the next step is to add the datasource tables to it. You can add multiple tables to an entity. The tables can be from multiple datasources. Whenever you add two or more tables to an entity, you need to establish relationships between the tables.

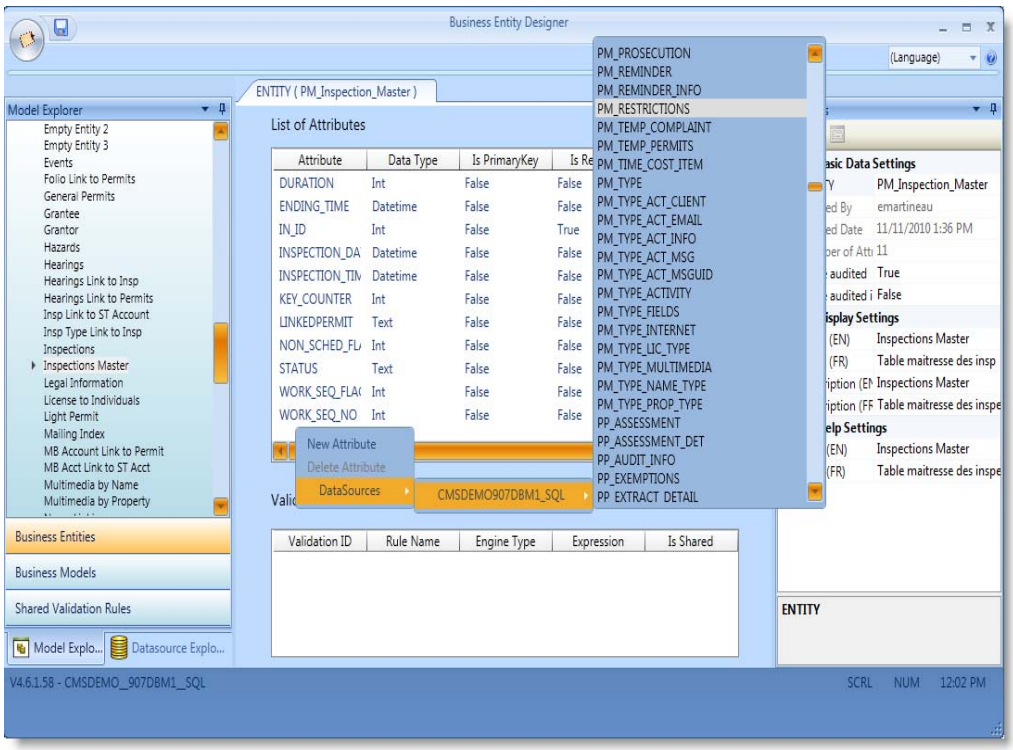
Note: If you adding more than one database table to a business entity, ensure that you add the root table first.

When you have finished, you can rename the attributes within the entity and update the attribute properties. *See Defining Attribute Properties on page 66*.

To add datasource tables to a Business Entity:

1. Launch the Business Entity Designer (BED).

2. Select **Datasource Explorer** and ensure that the connection key for the datasource is listed. For details on adding connections keys, see Adding Another Datasource on page 32.
3. Select **Model Explorer** > **Business Entities**.
4. Select the business entity to which you want to add datasource tables.



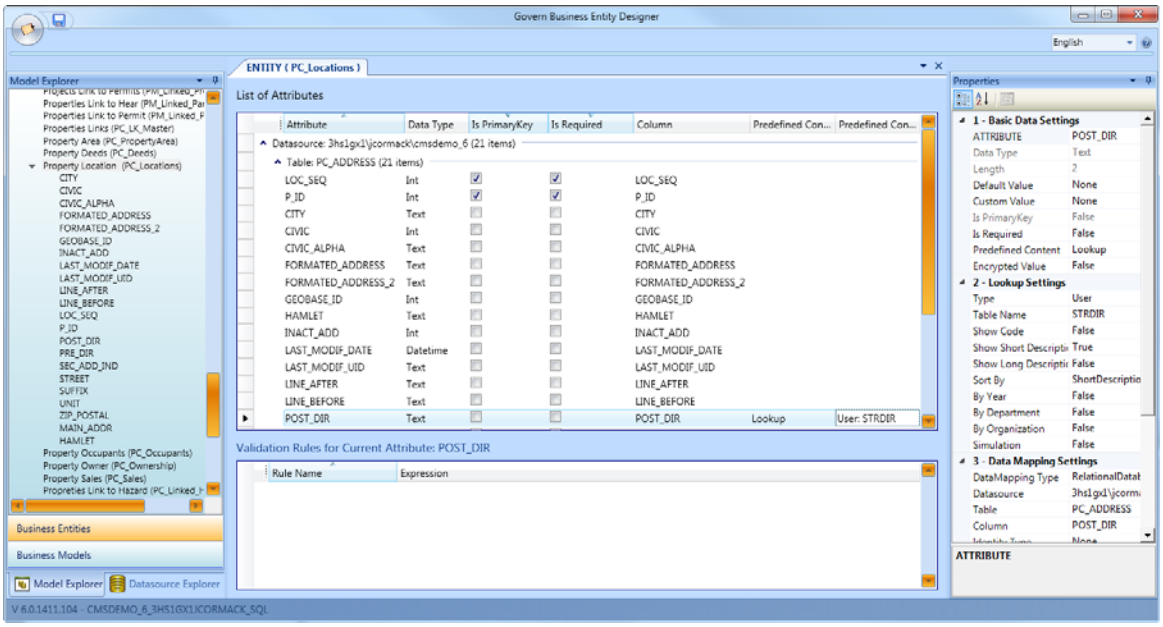
5. Right-click inside the List of Attributes pane.
6. Select **Datasources**.
7. Select your connection key and the datasource table.
8. All the columns contained in the datasource table are added to the List of Attributes list box.
9. Click **Save**.

Viewing Information About the Attributes

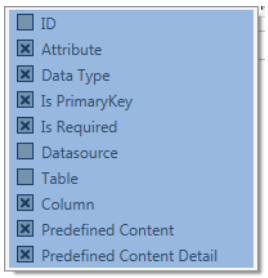
When you open an entity in the BED, the information is presented in a hierarchy. The datasources are listed first. These are followed by the tables

and finally the attributes. The datasource and table information can be expanded or collapsed.

The columns across the top display information about he attributes. By default, the following columns are displayed in the BED Editor in the center of the interface: Attribute, Data Type, Is Primary Key, Is Required, Predefined Content, Predefined Content Detail.



If you right-click on the columns at the top of the interface, you can show the entity ID, Datasource Name, and Table Name.



ID: The Entity **ID** is hidden by default. This is a number that is automatically assigned to the entity. It is useful for debugging purposes.

Attribute: Displays the name of the attribute.

Data Type: For existing attributes and mapped columns, this property displays one of the following: **varchar**, **bit**, **datetime**, **int**, **smallint**, or **text**. The data types are set in the datasource. This value is read-only in throughout the Business Entity Designer.

Is Primary Key: Displays **True** for the attributes that uniquely identify the record. Otherwise, displays False.

Datasource: For mapped attributes, this property displays the datasource name and the server where the mapped datasource column resides.

Table: This property displays the datasource table name to which the attribute is mapped if any.

Column: This property displays the datasource column name to which the attribute is mapped if any.

Predefined Content: This field displays Lookup, Calculated, or Field Mask for the attributes with Predefined Content. For other fields, it is blank.

Predefined Content Detail: For the attributes with Predefined Content, this field displays the name of the table associated with the lookup, the name of the expression used in the calculated field.

Refreshing Values from the Datasource

Select **Refresh Values from the Datasource** to do one of the following:

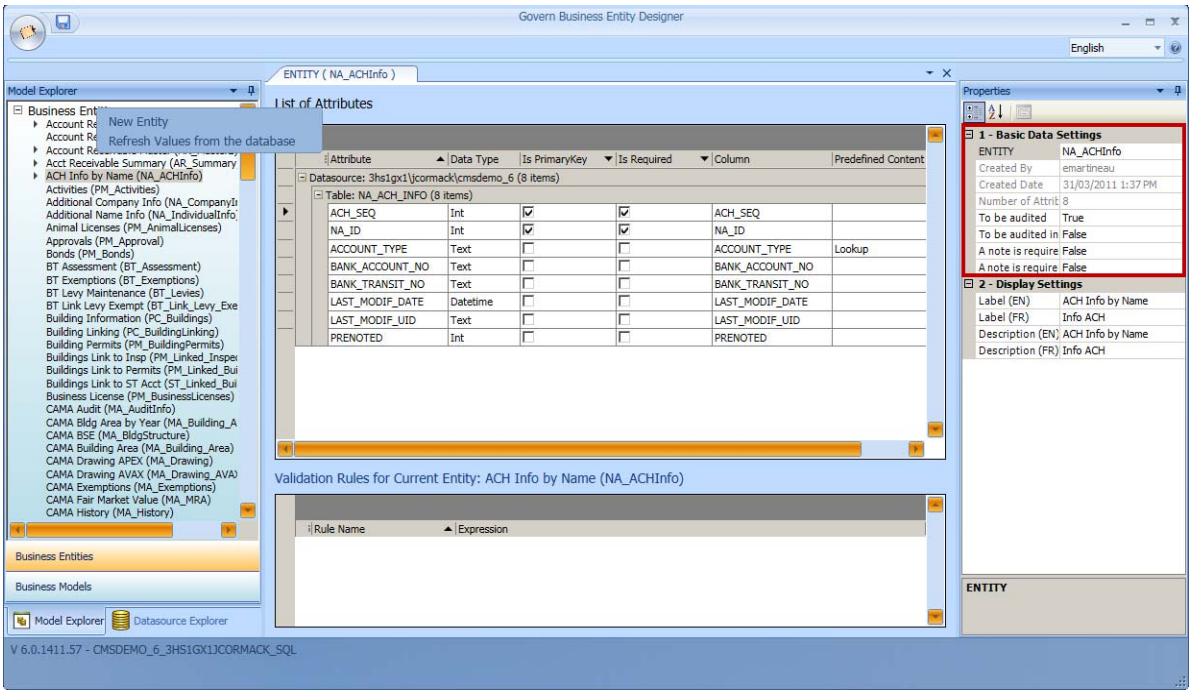
- Refresh all entities in the BED.
- Refresh the selected entity only.

It is recommended to perform this action after running a Database Verification in GNA. In both cases, the Refresh Values from Database:

- Adds new attributes to the entity if the database table contains new columns
- Updates an attribute if any of the database column properties have changed.

The properties that are updated are the four attribute properties that are always read-only in the Property Explorer for the attribute. These are found under Basic Data Settings:

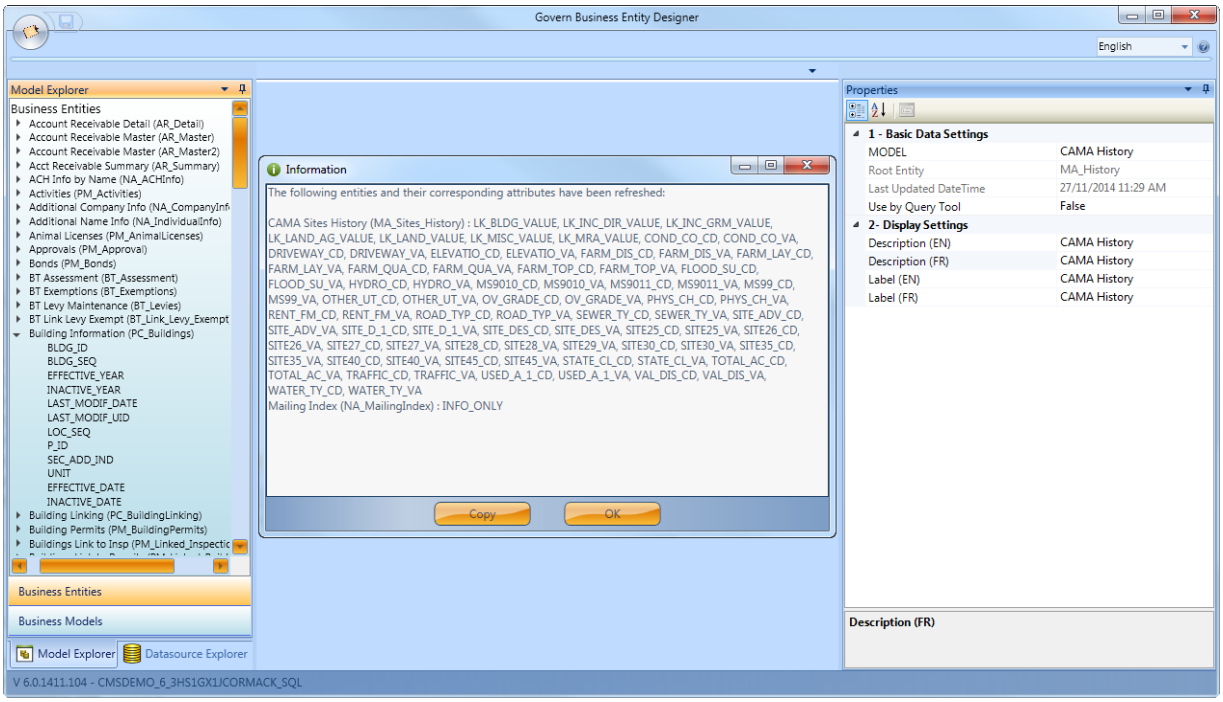
- Data Type
- Length
- Default Value
- Is Primary Key



A list of the changes made to the entities and attributes, as a result of the *Refresh*, is displayed. As shown in the following example, the entity is listed first. This is followed by the names of the attributes:

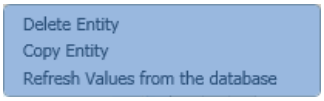
> Account Receivable Detail (AR_Detail) : PAYMENT_NO, RFND_STATUS, VALUE_FINALIZED.

The message is shown in the following screen shot.



To update or refresh a single entity:

1. Launch the BED.
2. Open the **Model Explorer** > **Business Entities** tab.
3. Expand the **Business Entities** list.



4. Right-click on the entity with the attributes you want to update.
5. Select **Refresh Values from the database**.

To update or refresh all entities at the same time:

1. Launch the BED.
2. Open the **Model Explorer** > **Business Entities** tab.
3. Expand the **Business Entities** list.
4. Right-click on **Business Entities** at the top of the list.
5. Select **Refresh Values** from the database.

Creating Links Between Tables in a Business Entity

When you have two or more datasource tables to a single Business Entity, you need to establish a relationship between the tables. One table must be defined as the Parent Table, the other tables are the Child Tables.

A Parent Table can be referenced by a Child Table in another relationship.

Note: When you add one or more attributes from a datasource table to a Business Entity, you need to include the Primary Key from each table.

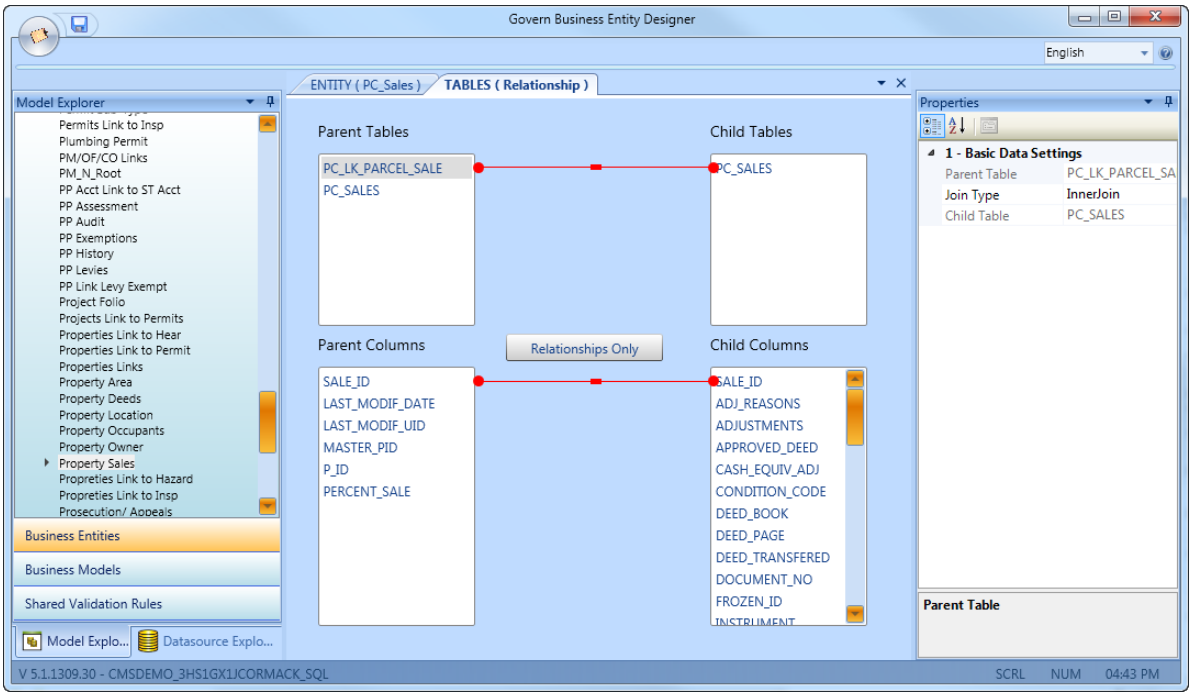
The link is always made from the Parent Table to a Child Table. It is done by dragging a Parent Column to a Child Column.

A Parent Table can be referenced by a Child Table in another relationship.

TABLES Relationship Interface

The Tables Relationships tab displays list boxes for the tables and the columns, Parent Tables, Child Tables, Parent Columns, and Child Columns.

All tables in the entity are displayed in both the Parent and the Child Table list boxes with the exception of the currently selected table. This table is displayed under the Parent Table list box only. When you select another entity, that entity is no longer displayed in the Parent Tables section.



Parent Tables: All the tables in the business entity are displayed under the **Parent Tables** list box. When you select a table, its columns are displayed under Parent Columns.

Parent Columns: When you select any table in the parent table section, its columns are displayed in the **Parent Columns** list box.

Child Tables: When you select a parent table, all other tables in the entity appear in the **Child Tables** list.

Child Columns: After selecting a parent table, all other tables in the entity are displayed under **Child Tables**, selecting a child table displays the columns in that table in the **Child Columns** pane.

Relationships Only / All Fields: Click **Relationships Only** / **All Fields** to switch between displaying only the columns that are linked and displaying all columns.

Linking Tables

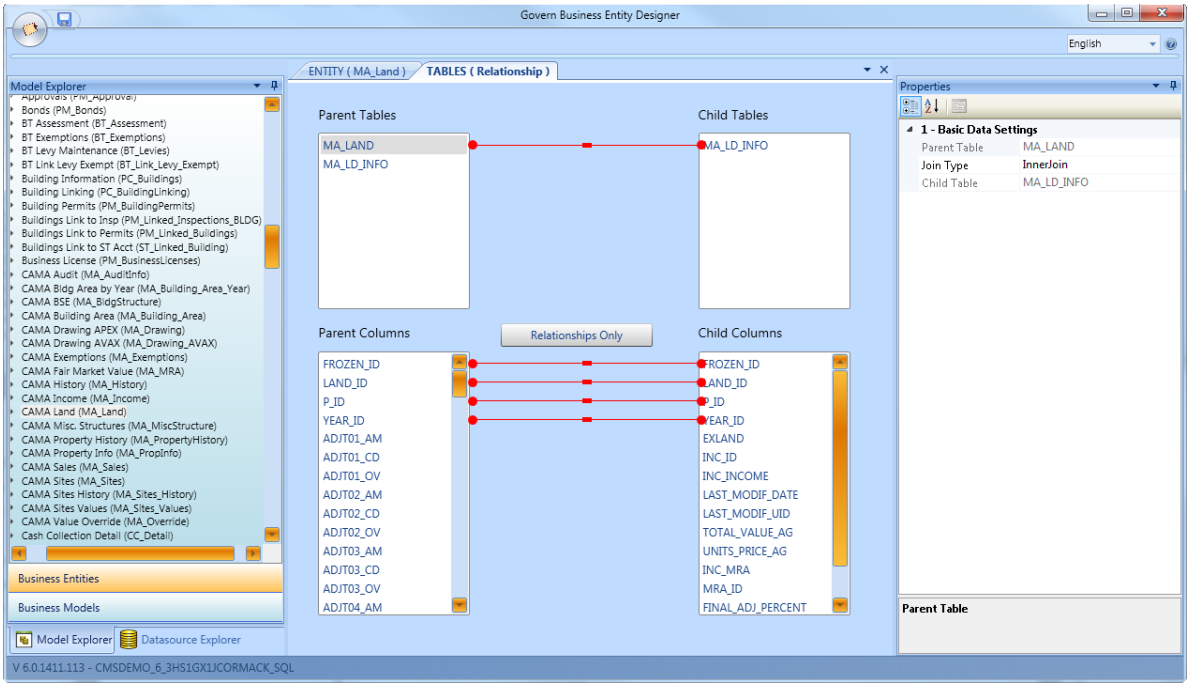
When you create a Business Entity with multiple database tables, you need to define the links between the tables. One table has to be set as the Parent

Table. The other tables are automatically set as Child Tables. You need to establish a link from the Parent to the child tables. It is recommended to make the link using primary keys, such as NA_ID to NA_ID. Relationships can also be established through Link tables in order to add a year or departmental ID. If no relationship is established, an error message is displayed:

To link or specify relationship information between tables:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select the applicable business entity to open it.
4. Select the **TABLES (Relationship)** tab.

   All the tables within the selected entity are listed in both the Parent Tables and Child Tables section, with the exception of the currently selected table.


s

The preceding screen shows the MA_Land entity. This comprises two tables. MA_LAND and MA_LD_INFO.

5. Select the parent table in the Parent Tables section. This is MA_LAND in this example.

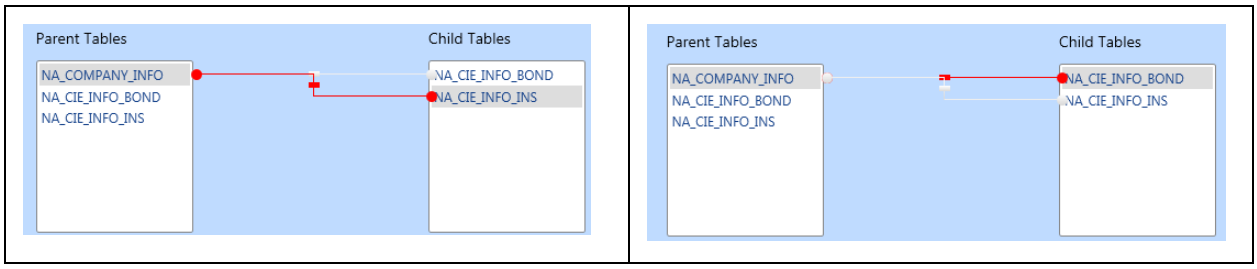
   The other table, MA_LD_INFO, automatically appears under Child Tables.

6. Select the child table, MA_LD_INFO, in this example.
7. In the Parent Column list box, select the column that you want to use to create the link.
8. Drag it to the Child Columns section and place it on top of the corresponding ID.

Note: When a link is established between columns, the linked columns appear first in the list of columns.

The red lines indicate the active link. This is the currently selected link. The grey lines indicate inactive links. The properties of the active link are displayed in the Properties window. To change the active link, click on the node in the centre of the link line. You can switch back and forth between active and inactive links.

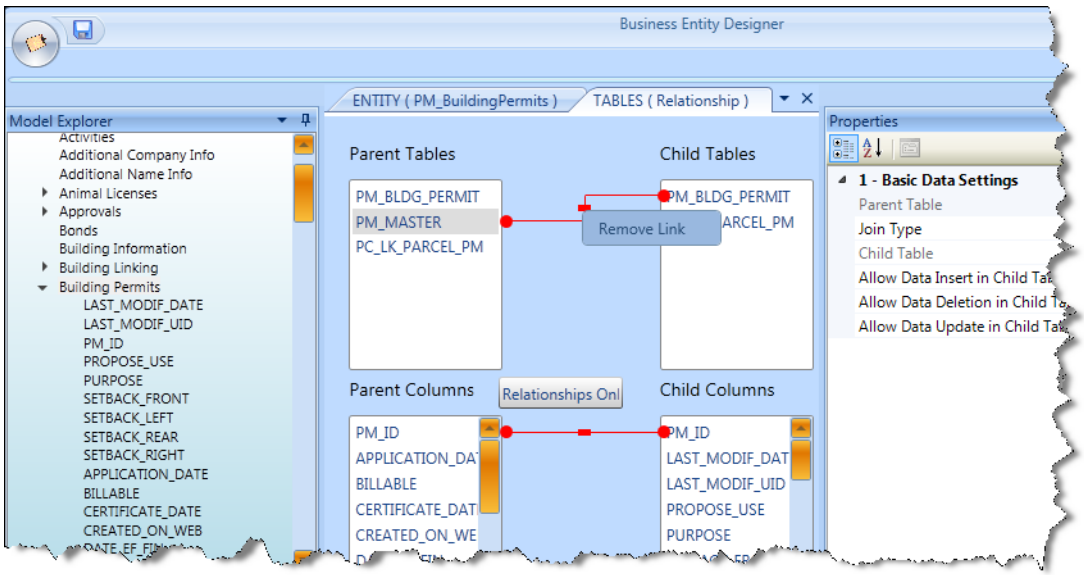
This is illustrated in the following screen shots:



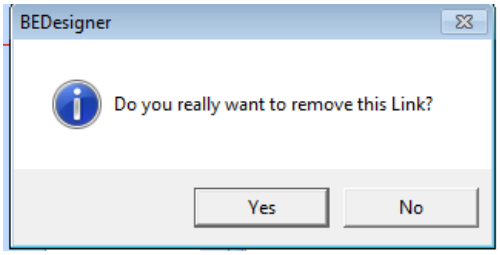
Removing an Existing Link

To remove a link:

1. Select **Model Explorer** > **Business Entities**.
2. Scroll to the Business Entity with the link that you want to remove.
3. Select the **TABLES (Relationship)** tab.
4. Select the Parent Table to display the existing links.
5. Select the link that you want to remove.



6. Right click on the Link Node in the middle of the line.
7. Select **Remove Link**. A confirmation message appears.



8. Click **Yes** to complete the deletion.

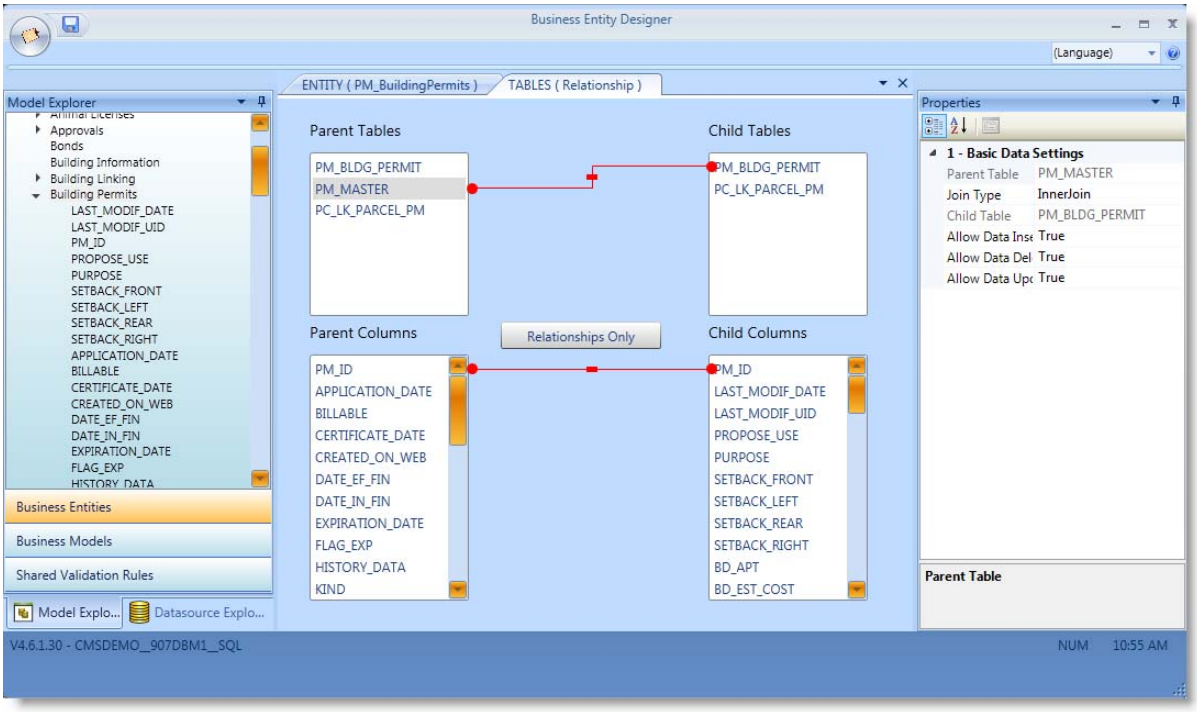
Defining Relationship Properties

The following properties are displayed under **Basic Data Settings** in the Properties window and define the relationship between the selected tables.

To view the properties for linked tables:

1. Launch the BED.
2. Select the Datasource Explorer and verify the datasource and connection key.
3. Select **Model Explorer** > **Business Entities**.

4. Select the applicable business entity to open it in the **Entity** tab.
5. Select the **Tables (Relationship)** tab to view the links between the tables.



All tables in the entity are displayed under Parents Tables. All tables with the exception of the currently selected table are also displayed under Child Tables. Links are established between the Parent Table and the Child Table.

6. In the **Parent Tables** section, select the table with the link for which you want to view properties.

Basic Data Settings

The properties for the link are displayed in the **Properties** window under Basic Data Settings.

Parent Table: The Parent Table field displays the name of the table selected in the Parent Tables section. All tables in the entity are displayed under Parents Tables. All tables with the exception of the currently selected table are also displayed under Child Tables. Links are established between the Parent Table and the Child Table.

In the Parent Tables section, select the table with the link for which you want to view properties.

Join Type: A Join Type is used to produce a new set of records by combining the records from two or more tables using a common value. Typically, it is based on two tables. For example, you could produce a new set of records by extracting all the records from PM_BLDG_PERMIT and PM_MASTER with the same Permit ID (PM_ID).

Three Join Types are available:

- **InnerJoin**: This is the most common Join Type. The Inner Join produces a new set of records by extracting all the records that have the same value in both tables for the field that is being compared.

  For example, you could use an Inner Join to compare the records in PM_BLDG_PERMIT and PM_MASTER and extract all the records with the same PM_ID in order to produce a new set of records. The records that do not have the same Permit ID are not included in the new set of records.
- **LeftOuterJoin**: The Left Outer Join extracts all the records from the first table with the matching records from the second table, when a match is available. Where a match is not found, NULL would be entered in all fields in the second table.

  For example, a Left Outer Join, based on the same two tables, would extract all the records from PM_BLDG_PERMIT and the records from PM_MASTER with the same PM_ID. Where a match is not found, NULL would be entered in all fields in the PM_MASTER table.
- **RightOuterJoin**: The Right Outer Join extracts all the records from the second table and the matching records from the first table, when a match is available. When a match is not found NULL would be entered for the first table.

  For example, a Right Outer Join, based on the same two tables, would extract all the records from PM_Master and the records from PM_BLDG_PERMIT with the same PM_ID. Where a match is not found, NULL would be entered in all fields in the PM_BLDG_PERMIT table.

Child Table: Displays the name of the Child Table linked to the Parent Table that is currently selected.

Allow Data Insert, Deletion, Update: Ensure that these options are set to **True**:

Chapter 5: Managing Attributes

Overview

The attributes created in the Business Entity Designer (BED) become the data entry fields on the Govern forms and the columns in the Govern QueryTool. They are grouped into business entities. The business entities are grouped into business models.

The attributes in a business entity can come from multiple tables and even multiple datasources. They can also be stand-alone; i.e., not mapped to a datasource and not used for values that are saved to a datasource.

Tip: If you are planning to add attributes to an entity and to define properties for those attributes, it is helpful to begin with a layout of your database tables as suggested in *Managing your Datasources for the Deployment on page 28*.

This chapter is divided into sections. The first describes the actions that can be applied to an attribute. The second describes the attribute properties.

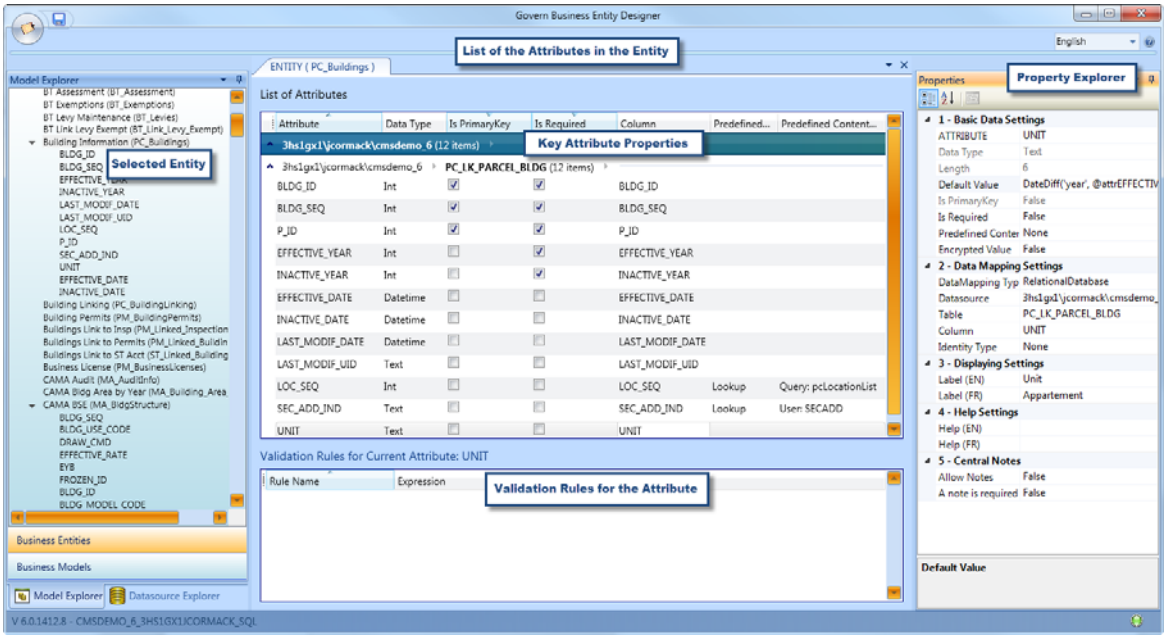
Actions on Attributes

Overview

This section describes the following:

Viewing the Attributes in an Entity

When you open an entity in the Business Entity Designer, the attributes that it contains are listed in the BED Editor in the center of the interface. The columns across the top list the key properties from the basic data and data mapping settings. This provides an overview of all attributes at a glance. When you select an attribute, the properties are listed in detail in the Property Explorer at the right of the interface.



By default, the columns listed across the top are:

- **Attribute (Name)**: The name assigned to the attribute.

- **Is Primary Key**: Selected when the attribute is a primary key of the enity.
- **Is Required**: Selected when the user is required to enter data in the Govern field mapped to the selected attribute.
- **Column**: The name of the database column to which the attribute is mapped.
- **Predefined Content**: Displays Calculated, Lookup, or Field Mask when one of these is defined for the attribute.
- **Predefined Content Detail**: Displays the expression, validation table, or field mask that is defined for the attribute.

You can add the following:

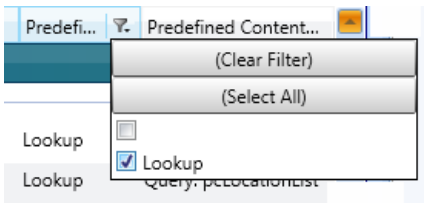
- **ID**: An internal code that is useful for debugging purposes.
- **Data Type**: The data type defined in the database, such as Text, Integer, and Real
- **Datasource**: The datasource containing the datasource table and column to which the attribute is mapped.
- **Table**: The datasource table containing the column to which the attribute is mapped.

The properties are defined in detailed under Defining Attribute Properties on page 66.

Changing the Sort Order: Click on a column heading to change the sort order from ascending to descending.

Moving Columns: Select a column and move it to the right or left if this makes the presentation more relevant.

Applying a Filter: Click the arrow to the right of a column. then, make a selection to display only the information that matches the selection.



Deleting an Attribute

You can delete any attribute from a business entity in the BED. Before doing so, read the following section and consider alernative ways to accomplish what you want to do.

Alternatives to Deleting an Attribute

If you are deleting an attribute because you do not need it on a form, there are several alternatives to consider. It is recommended to use an alternative because the attribute that you deleted could be reimported when you perform an update.

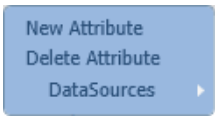
- **Apply security to the attribute**: You can hide an attribute from view or make it read-only by applying security permissions in the OpenForms Designer (OFD). There are several levels of security that you can apply to an attribute. You have options to hide or show it according to the type of record (normal or alternative), the profile, the user or role, and many combinations of these levels.
- **Write an expression and apply it to a group of attributes**: You could also write an expression to hide or disable a group of attributes that are contained within an entity, a grid, a groupbox, or a tab. Alternatively, you could apply security permissions to one of these groups.
- **Exclude the attribute when you create the form**: When you add the entity to the form in the OpenForms Designer, you can choose which attributes to include. Deselect the attributes that are not required on your form.
- **Delete the attribute from the Govern form**: You could deselect the attribute from the form in the OpenForms Designer

For details on these options, refer to Govern OpenForms Designer (OFD) guide.

Deleting an Attribute From a Business Entity

To delete an attribute from a business entity.

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select the business entity with the attribute that you want to delete.
4. Right-click on the attribute and select **Delete Attribute**.



A confirmation message appears.

5. Click **Yes** to complete the deletion.
6. Click **Save**.

Adding Attributes to an Entity

You can add the following types of attributes to an entity:

- A standalone attribute that is not mapped to a datasource: *See Creating a Standalone Attribute on page 62*.

  Note: Attributes that are not mapped to a datasource cannot be seen in the Govern QueryTool.

- An attribute that is mapped to a relational datasource. The procedure for mapping this type of attribute is described under *Adding Datasource Tables to a Business Entity on page 45*.

  Note: When you add an attribute from a new database table, you need to add the Primary Key from that table.

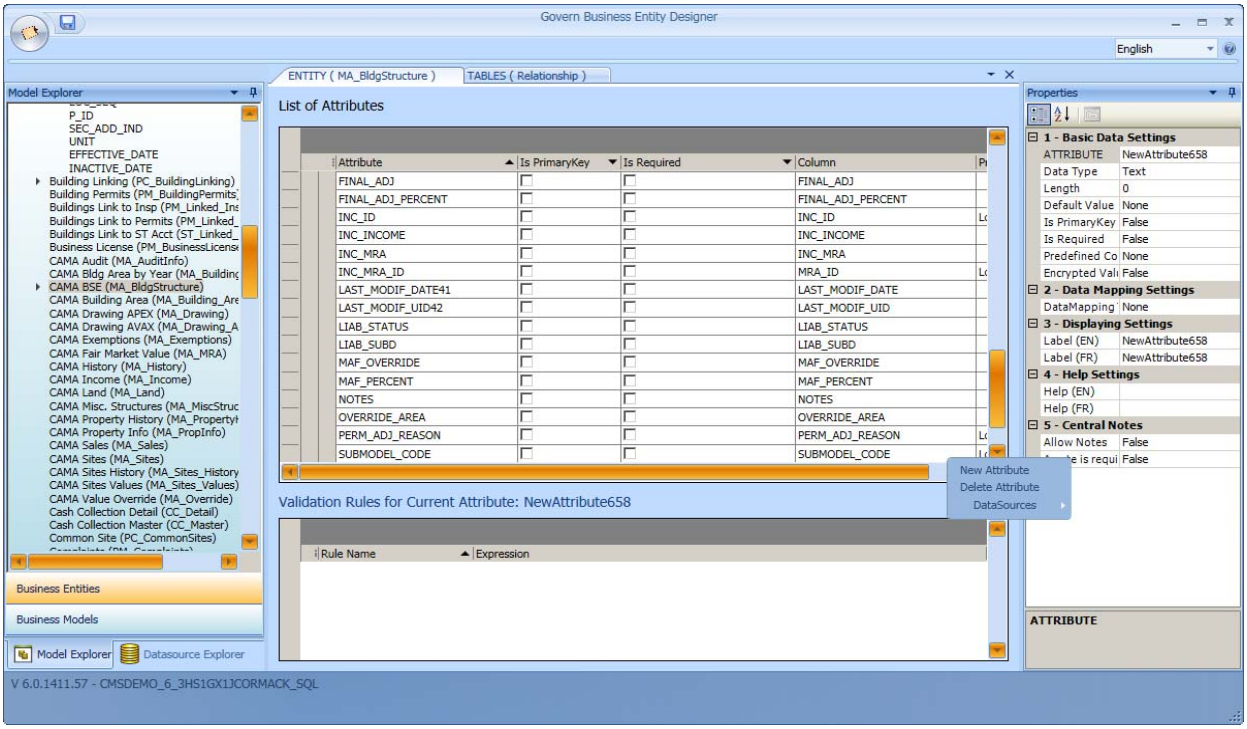
Creating a Standalone Attribute

The following procedure describes how to create a stand-alone attribute that is not associated with a datasource column.

To create a new attribute:

1. Launch the BED.
2. Select the Datasource Explorer and verify the datasource and connection key.
   - Ensure that the connection key is for the primary datasource.
   - If you are building a business entity from multiple datasources, ensure that all datasources are added to the Datasource Explorer.
3. Select **Model Explorer** > **Business Entities**.

4. Open the applicable business entity in the List of Attributes pane.
5. Right click inside the List of Attributes pane.
6. Select **New Attribute** from the context-sensitive menu.



New Attribute appears in the Properties window with a system-generated number. One is added to this number each time a new attribute is created.

7. Select the new attribute to display the properties. See *Defining Attribute Properties on page 66*.

Note: Standalone attributes are created for Govern OpenForms only.

Creating an Attribute and Mapping it to a Database Column

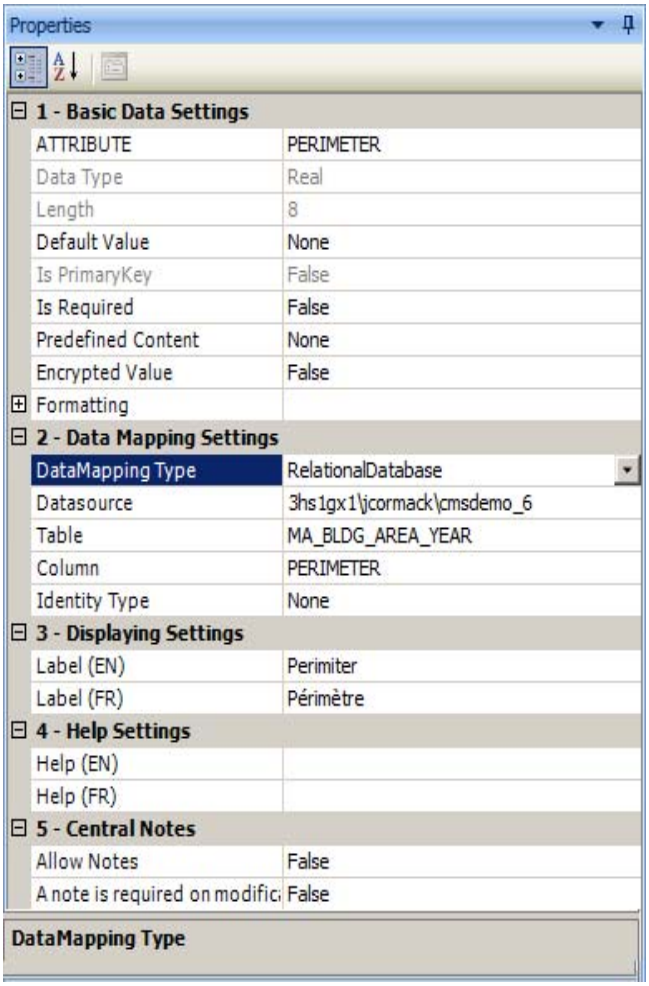
The following procedure describes how to create a new attribute and associate it with a database column.

Note: When you map a new attribute to an existing database field, it is important to keep the existing database settings for the data type. length, and primary key.

These setting become read-only when you save the entity.

To create a new attribute and map it to a database column:

1. Follow steps 1 to 6 in the procedure for creating a stand-alone attribute. See *Creating a Standalone Attribute on page 62*.
2. Select the new attribute.
3. Update the following properties in the **Data Mapping Settings** section.

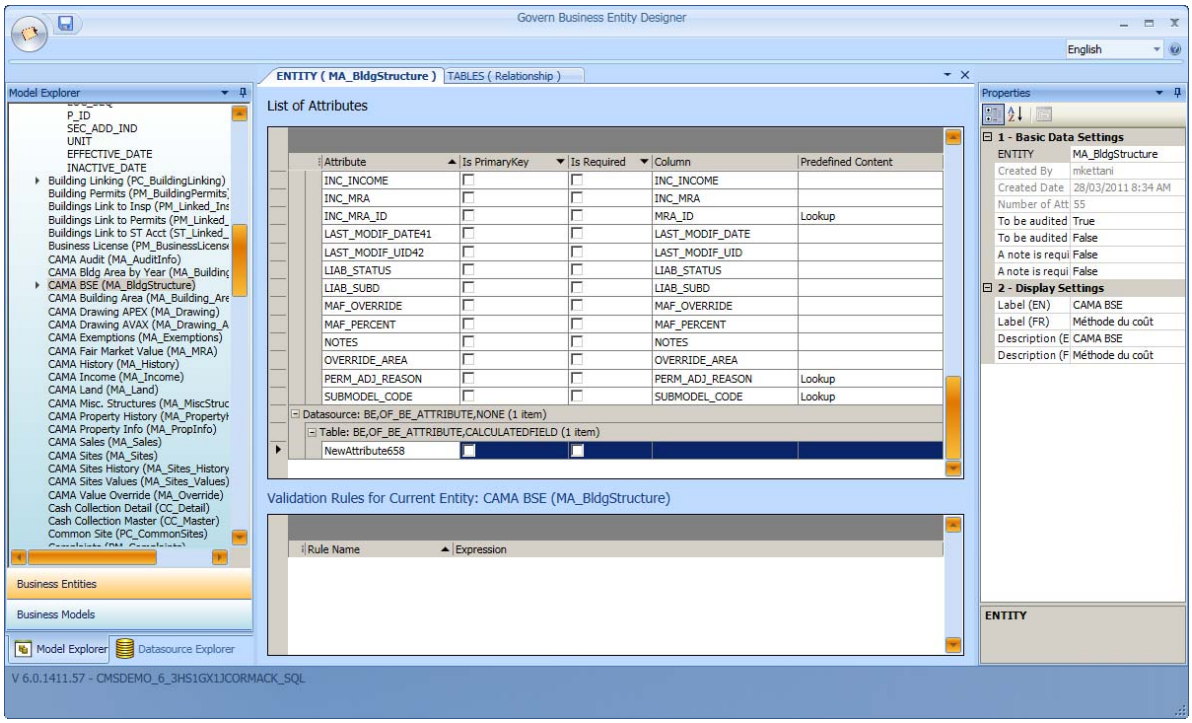


4. Select **Relational Database** beside **DataMapping**.
5. Select the datasource that contains the database column corresponding to the selected attribute.
6. Select the database table containing the column that corresponds to the attribute.
7. Select the column that corresponds to the attribute.
8. Select one of the following options:
   - **GovernIdentity** for a Govern database.
   - **None** if there is no database mapping.
9. Click **Save**.
10. Define the other properties as described under *Defining Attribute Properties on page 66*.

Defining Attribute Properties

Overview

When you open an entity in the Business Entity Explorer, its attributes are listed in the editor in the center of the interface. The columns across the top list the key properties from the basic data and data mapping settings so that you can view all properties at a glance. When yuo select an attribute, the properties are listed in detail in the Property Explorer at the right of the interface.



These are:

- Attribute (Name)
- Is Primary Key
- Is Required
- Column
- Predefined Content

You can add the following:

- ID
- Data Type
- Datasource
- Table

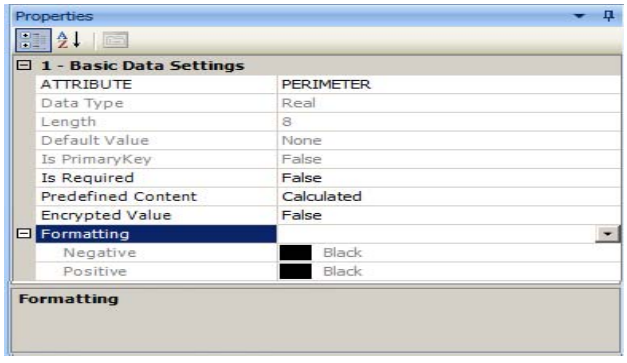
This section describes the properties, in the order they are grouped in the Properties Explorer:

- Basic Data Setting
- Calculated Field Data Settings
- Lookup Settings
- Data Mapping Settings
- Displaying Settings
- Help Settings

Note: The Calculated Field Data Settings and Lookup Settings are displayed only when you select Calculated or **Lookup Value** from the **Predefined Content** parameter.

Basic Data Settings

The Basic Data Settings are displayed at the top of the Properties window. These are the general settings for the attribute.



ATTRIBUTE

Displays the name of the attribute. You can modify this by overwriting the existing value.

When you create a new attribute, this property displays a system-generated name, *NewAttribute*, and a number. One is added to the number for each new attribute. To enter a new name, overwrite the existing one.

Data Type

For existing attributes, this field displays one of the following: **varchar**, **bit**, **datetime**, **int**, **smallint**, or text. The data types are set in the datasource and this value is read-only.

If you are creating a new attribute, select one of the following according to the type of data it is designed to hold: **text**, **bool**, **datetime**, **int**, or **real**.

Length

Enter either the maximum number of characters or the fixed length of the attribute value, depending on the data type. For existing attributes, this field is read-only.

Is PrimaryKey

Select **True** if the attribute uniquely identifies the record in the table. Otherwise, select **False**.

Note: There can be only one Primary Key in an entity.

Is Required

Select **True** if the end-user is required to enter data in the parameter. Otherwise, select False.

Default Value

You can enter a default value to appear in the data entry field on the Govern form, by adding an expression. Unless the field is made read-only, with security permissions, users can override the default.

You can use any expression as a default value. You can also combine a number of expression types. In previous version of Govern, you could add a custom value or a date. These are described in this section.

Enter the expression in the Expression Selector. Then, test logic of the expression with the Evaluate option. See

AddingText

Enter the text that you want to see in the field. Use single quotation marks (‘) around the text.

For example, 'Created by Harris Govern'

Adding a Value

Enter the value that you want to see in the field..

For example, 10

Adding an Item from a Combo Box:

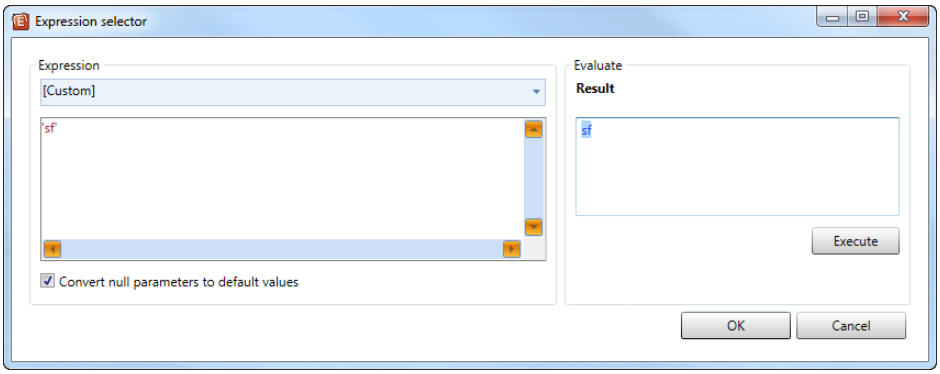
- This type of expression can be used for a lookup.

  Ensure that the **Predined Content** is set to **Lookup** and the **Data Mapping Settings** are complete.

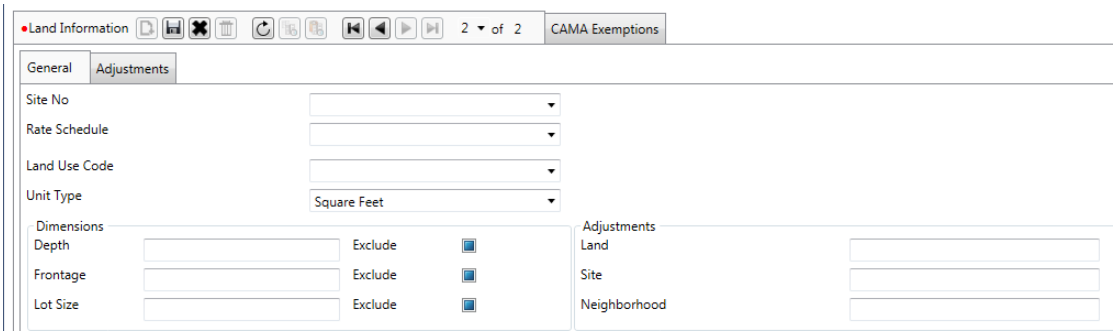
  Enter the **Code** associated with the Lookup Value from the Validation Table

  Use single quotation marks around the code.

  For example, to display square feet in the **Units Type** field on the *CAMA Land Information* form, enter ‘sf”.



The default value is displayed when you click **New** on the Govern form.

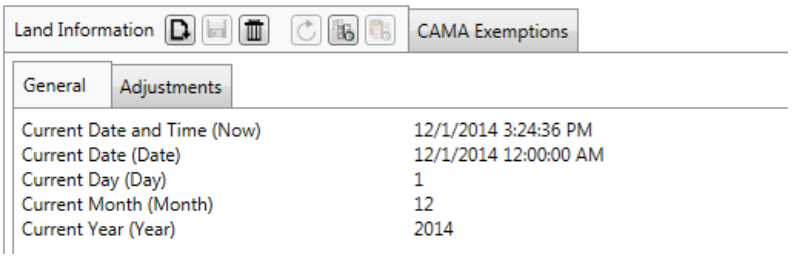


Adding a Date:

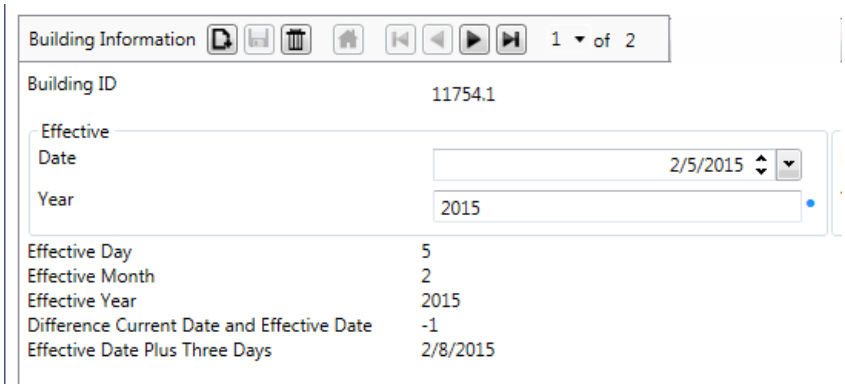
Several options are available for date fields.

Expresson Syntax	Result	Example
Now()	Displays the current date and time.	12/1/2014 3:24:36 PM
Date()	Displays the current date if used alone.	12/1/2014 3:24:36 PM
Date(@attr)	Displays the full date of the associated attribute if one is included in the expression.	Date(@EffectiveDate) 1/31/2014 5:29:36 PM
Format(Date())	At this time, the Format syntax is required with this expression in order to hide the time.	Format(Date(@EffectiveDate), 'd') 12/1/2014
Day()	Displays the current day.	1
Day(@attr)	Displays the day of the associated attribute if one is included in the expression.	Day(@EffectiveDate) 1
Month()	Displays the current month.	12
Month(@attr)	Displays the month of the associated attribute if one is included in the expression.	Month(@Effective Date) 12
Year()	Displays the current year.	2014
Year(@attr)	Displays the year of the associated attribute if one is included in the expression.	Year(@EffectiveDate) 2014

The following screen shot shows the results of several date expressions in Govern with no associated attributes.



The next screen shot shows date expressions associated with the effective date of a building record.



Adding a Positive or Negative Value to a Date

You can use the following syntax to add or subtract a value to a date. For example, you could add two days to the current date. The syntax for this is

```
DateAdd()
```

Add the part of the date that you want to update, the value, and the date that you want to update in the parantheses.

```
For example: DateAdd('day', 2) adds two to the current day.
If this is December 1, 2014, the result is December 3, 2014.
```

The following parts of date can be used:

- Day

- DayOfYear
- Hour
- Minute
- Month
- Quarter
- Second
- Weekday
- WeekOfYear
- Year

If you adding the DateAdd() syntax to a text field, add the string or a format syntax.

For example: Str(DateAdd('day', 2))

or Format(DateAdd('day', 2), 'd') adds two to the current day.
If this is December 1, 2014, the result December 3, 2014 is displayed.

You could also add three hours, four weeks, or five months. In other words, you could add or subtract any value to any of the following parts of dates:

Displaying an Interval Between Dates

You can use the following syntax to display an interval between two dates. For example, you may want to show the difference between the effective date of a record and the current date. The syntax for this is

DateDiff('DatePart', @attr1, @attr2)

where DatePart is the part of the date or time that you want to update, such as, the hour, minute, day, week, or year.

Add the part of the date that you want to update, the value, and the date that you want to update in the parantheses.

For example: DateDiff('day', @EffectiveDate, @InactiveDate) displays the number of days difference between the effective date and the inactive date of the record.
If this is December 1, 2014, the result is December 3, 2014.

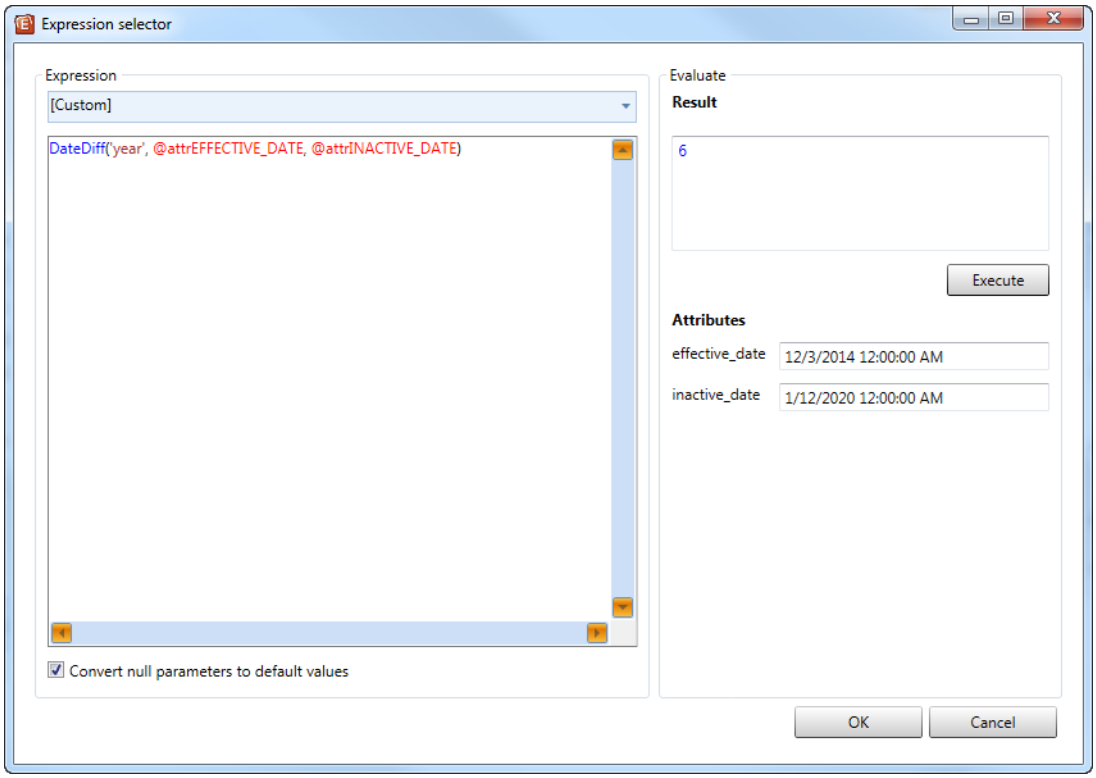
The following components of a date can be used in an expression:

- Day
- DayOfYear
- Hour
- Minute
- Month
- Quarter
- Second
- Weekday
- WeekOfYear
- Year

Adding the Expression

To add an expression to a default value:

1. Open the business entity.
2. Select the attribute.
3. Click the ellipsis button  in the **Default Value** field to open the Expression Selector.



4. Enter the expression in the Exression Selector.

   The attributes that are used in the expression are displayed on the right.
5. Enter typical dates in the effective and inactive date fields.
6. Click **Execute** to test the expression.
7. Click **OK**.
8. Click **Save** in the Business Entity Designer.
9. Open the form in Govern to view the expression.

Predefined Content

Select one of the following:

- **None**: This is the default. Select None if you are not associating a calculated value, lookup value, or field mask with the attribute.
- **Calculated**: Select **Calculated** to associate a calculated value with the attribute. A new set of properties is displayed with the heading **Calculated Field Data Settings**. *See Calculated Field Data Settings on page 76*

- **Lookup**: Select **Lookup** to associate a validation table or query with the attribute. A new set of properties is displayed with a new heading **Lookup Settings**. *See Lookup Settings on page 82*
- **FieldMask**: Select **FieldMask** to associate a field mask with the attribute. A new property is displayed with the heading Field Mask Settings *See Field Mask Settings on page 85*.

Note: You can select only one of these properties for each attribute.

Encrypted Value

Select **True** to store the attribute value in encrypted format in the database. Otherwise, select **False**.

Formatting

The formatting properties are available for numeric fields, such as Integer and Real. These properties are used for applying formatting to percentages, values, and other numbers for display purposes. For example, you could add a percentage sign, currency symbol, or a comma separator.

The number formats are user-defined and are created in the Number format Editor in GNA. Refer to the Number Format Editor documentation on the Govern wiki: http://product.msgovern.wikispaces.net/103-ED-008

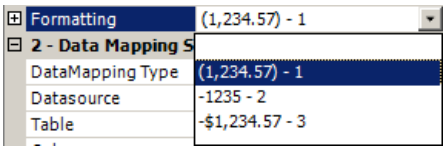
Note: Formatting can also be applied to values shown or resulting from expressions, using the formatting syntax as described in the Govern OpenForms Designer guide, available on the Govern wiki at http://product.msgovern.wikispaces.net/105-all-OFD

To associate a number format with an attribute:

1. Launch the BED.
2. Open the entity that has the attribute you want to format.
3. Select the attribute in the Business Entity Designer editor.
4. Expand the **Formatting** properties in the Property Explorer.

   Formats are listed as they appear in Govern.

   For example, in the following screen shot, three number formats are available.



The first number shows how the format is applied to a sample number. In the screen shot, these are (1,234.57), -1235, and $1,234.57. The format includes the:

- Decimal position
- 1,000 separator: comma or space depending on the culture
- With or without dollar sign
- Position of the dollar percentage sign
- Negative symbol (minus sign or parentheses)

The second number can be ignored. It indicates the position of the format in the combo box, or the order that the format is listed. The positions are 1, 2, and 3 in the screen shot.

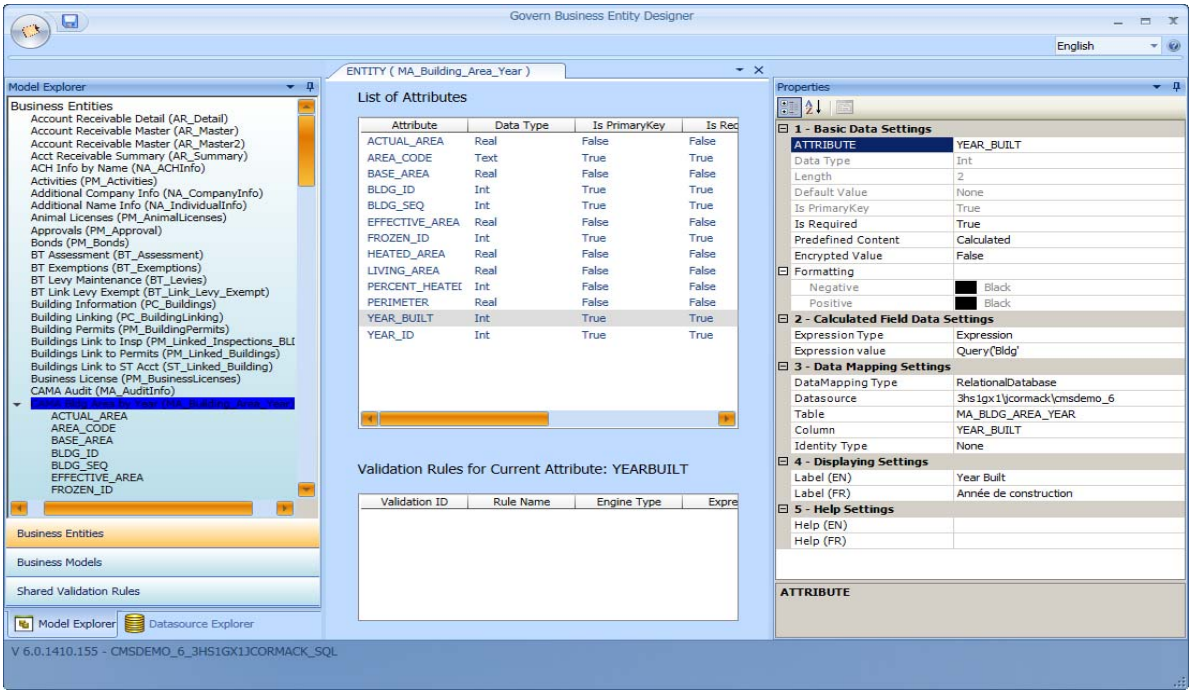
The colors defined for the negative and positive and positive formats are displayed.

5. Click the **Save** icon.

You can verify the format by opening the applicable form and entity in Govern.

Calculated Field Data Settings

The Calculated Field Data Settings properties define the characteristics of attributes that hold calculated values. They are displayed only when the **Predefined Content**. parameter is set to **Calculated Value**.



Expression Type: Select one of the following options:

- **Expression** to link to an expression to the attribute
- **Query** to link to a query to the attribute.

Note: If you are associating a query with the attribute, it is recommended to use the Expression Selector, rather than selected Query. The Expression Selector is more robust.

Adding an Expression

The *Expression Selector* is available in Govern OpenForms 6.0 and above. It can be used for associating expressions with the actions and functions performed from the Govern forms. With the OpenForms Designer (OFD), you can associate expressions at the entity level or with most controls, including attributes. *For further details, refer to the Govern OpenForms Designer (OFD)*.

In the Business Entity Designer (BED), you can add an expression for the calculated value associated with an attribute. If you add the expression in the BED, to an attribute that is mapped to a database column, the result is saved to the database.

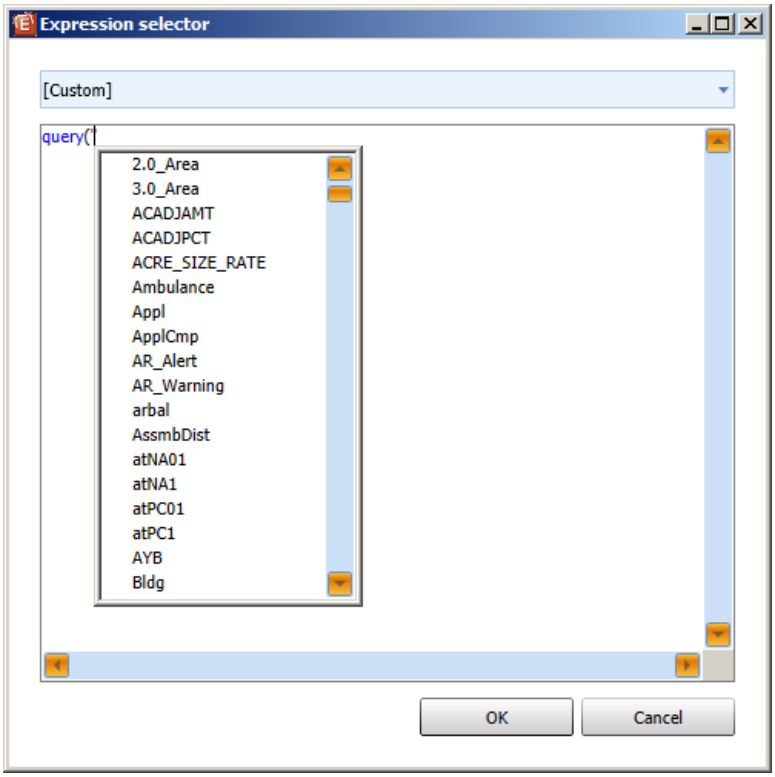
The syntax for the expressions is displayed as you enter the first words or letters of the expression.

For example,

- **Expressions that display the value of an attribute or Govern ID**: You could write an expression that displays the value of any attribute or Govern ID in the current entity. It is easiest this type of expression with a label in the OFD. *For details, refer to the Govern OpenForms Designer guide*.
- **Logical Expressions or Formulas**: Any formula or logical expression can be used. *For details, refer to the Govern New Administration (GNA) guide*.
- **Queries**: You can use a query as an expression or include one in a longer expression.

  The syntax is:
  Example 1: Query('GetParcelName') =>Returns the result from GetParcelName.
  Example 2: Query('GetQuantity', 2) => Returns the result from GetQuantity with a maximum cache of 2 minutes.

  In order to display the tooltip with the syntax for a query, enter the first couple of letters of the word query. When you enter the full word with the opening parenthesis and the quotation mark, the list of queries that are saved in the GNA Query Editor is displayed.



If you are using a predefined query, select it from the list.

The query returns a value and saves this value to the cache. The value in the cache is used as long as it is no older than the number of minutes specified in the query.

The example, Query('GetQuantity', 2), would use a value that is saved in the cache for two minutes or less.

If multiple records are returned for the query, the result from the first row is returned.

- **Standard Expressions**: For a list and description of the expressions that are accepted, click on the following links:

  The following links provides lists and descriptions of all the expression types that are supported:

  http://ncalc.codeplex.com/wikipage?title=functions&referringTitle=Home

  http://ncalc.codeplex.com/wikipage?title=operators&referringTitle=Home

  When you begin to enter a standard expression in the Expression Selector, a tooltip with a description and an example is displayed. For these expression, you need to enter a few letters that match the type of expression. Then, select the expression from a drop-down list.
- **Govern Expressions**: The Govern expressions are:
  - IsNull

- Substr
- Case

These can be included in a longer expression or used as a stand-alone expression:

ISNULL. For example, ISNULL(@attrP_ID, 0) returns 0 if the parcel ID (P_ID) is null.

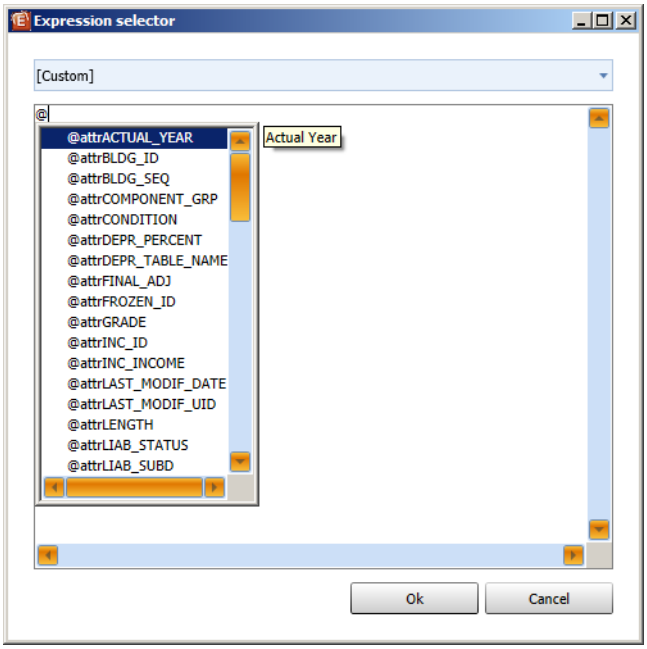
SUBSTR. For example, SUBSTR('MSGovern', 3, 6) returns six characters from the third position of the string 'MSGovern'. It returns Govern.

CASE. For example, CASE(@idYEAR_ID,
2000, 0,
2001, 1,
2002, 2)
Returns 0 if the YEAR_ID is 2000, 1 if it's 2001, or 2 if the year is 2002.

When you begin entering one of these expressions in the *Expression Selector*, a tooltip is displayed that provides a description and an example.

To add an expression to the attribute:

1. Select **Expression** as the **Expression Type**.
2. Select the ellipsis button  in the **Expression Value** text box. This opens the Expression Selector.



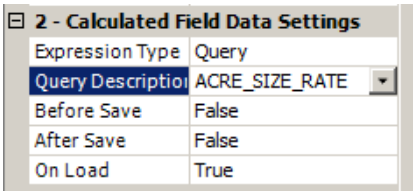
3. Enter the expression.
4. Click **OK**.

Adding a Query

Note: You can also add an expression with the Expression Selector, which is the recommended method.

To add a query to the attribute:

1. Select **Query** as the **Expression Type**.
2. Select the ellipsis button ... in the **Query Description** text box. This opens a drop-down list containing the queries created in the SQL Query Editor in GNA.



3. Select the query.
4. Select **True** for the **Before Save** property to run the query when the value of the attribute changes. Otherwise, select **False**.

5. Select **True** for the **After Save** property to run the query after the form is saved. This would be useful if the query is used to calculate a value. Otherwise, select **False**.
6. Select **True** for in the **On Load** property to execute the query when you open the form. Otherwise, select **False**.

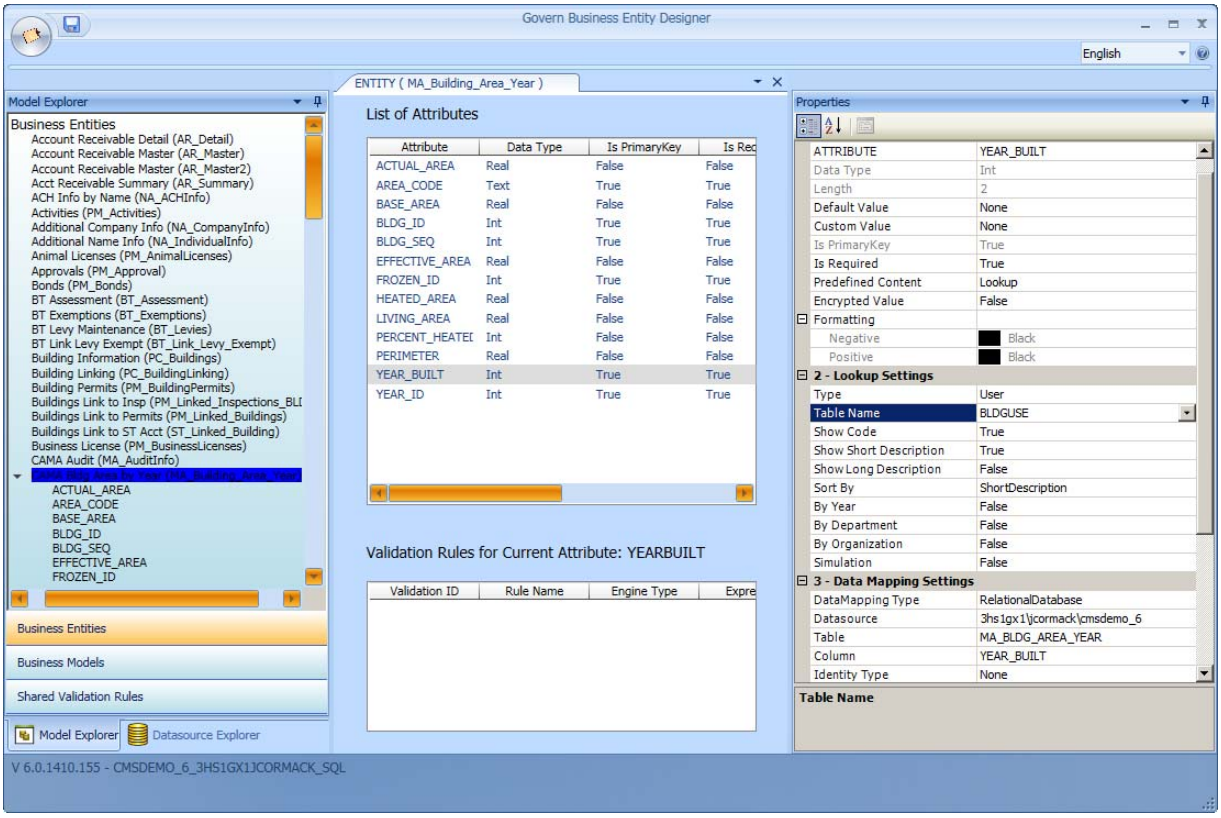
Note: If the **Before Save**, **After Save**, and **On Load** are set to **False** at the same time, an error will be displayed. When you click **OK** to continue the *Before Save* parameter will be set to **True** while the others remain **False**.

7. Click **Save**. to expression or query definition.

For further details on creating queries, refer to the Govern New Administration (GNA) guide.

Lookup Settings

The following properties are available for lookup values. They are displayed when the **Predefined Content** parameter is set to **Lookup Value**:



Type: Select one of the following according to the type of validation:

- **User**: to perform the lookup with a user validation table
- **System**: to use a system validation table
- **Query**: to use a pre-defined query

Lookup Settings for Validation Tables

Type: Select **User** or **System** according to the type of validation table selected for the lookup.

Table Name: Select the specific **User** or **System** validation table, by table name.

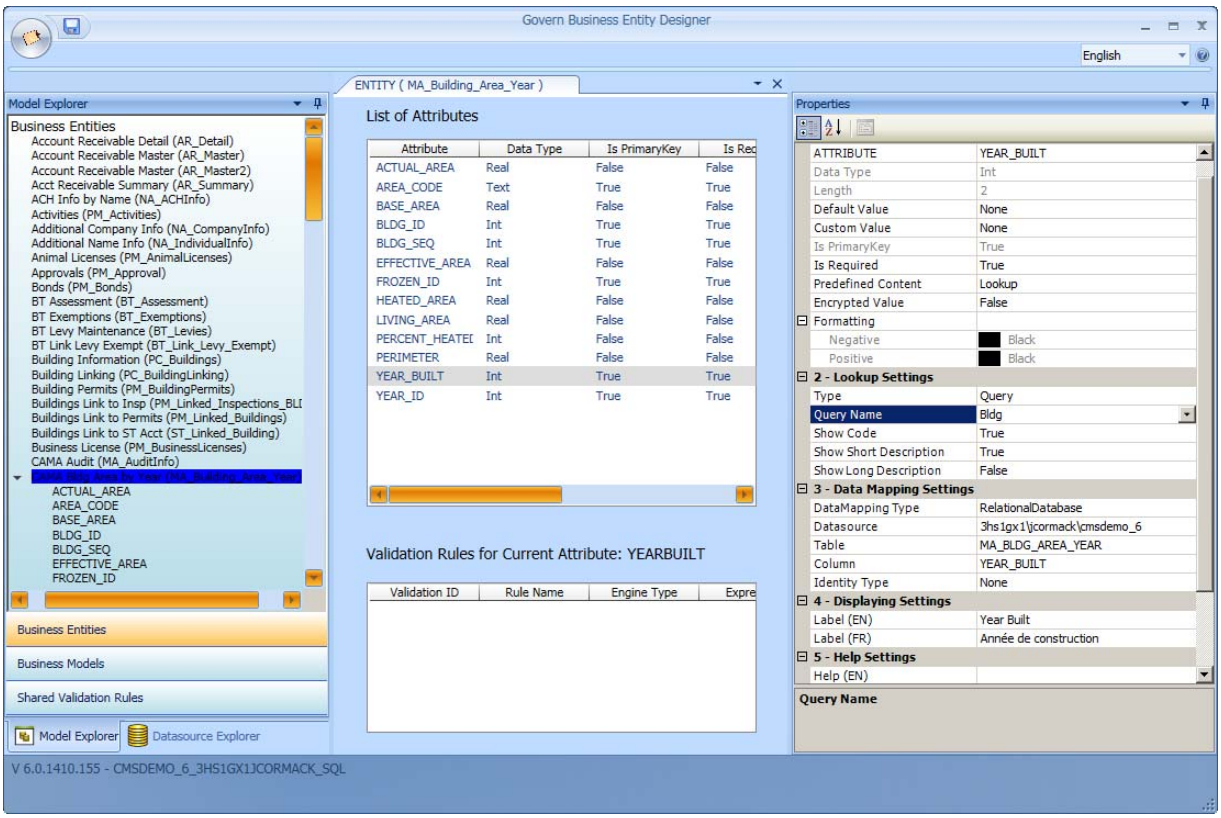
Show Code / ShortDescription / LongDescription: Select **True** or False for these properties depending on whether you want to display or hide the **Code**, **ShortDescription**, and **LongDescription** for the table.

Sort By: Select one of the following for ordering the information by the selected attribute: **Code**, **ShortDescription** or **LongDescription**

By Year / Department / Organization / Simulation: Select **True** beside the option that applies to the selected table. For example, Mass Appraisal tables are saved by year.

Default from Lookup: Select the default value to display on the end-user form if applicable.

Lookup Settings for Queries



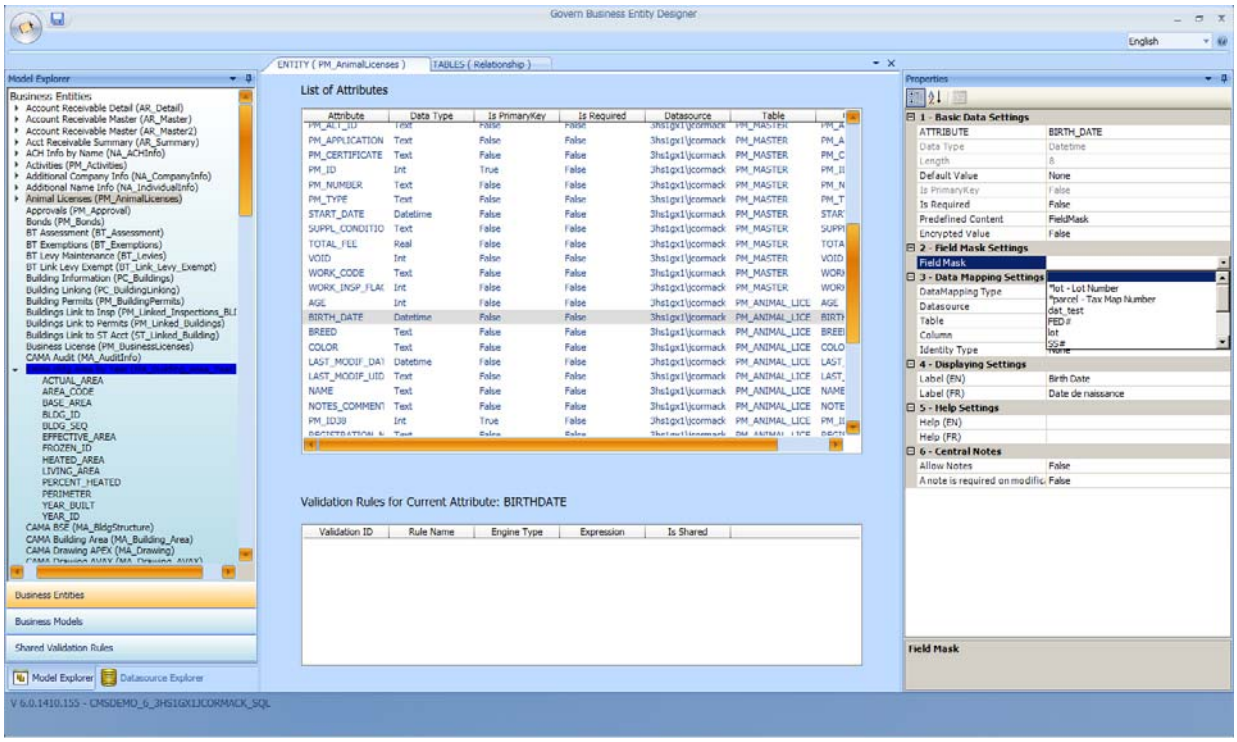
Type: Select **Query** from the Type drop-down list.

Query Name: Select the predefined query from the drop-down list. Queries are created and saved in the *SQL Definition Setup* editor in GNA. *For details, refer to the Govern New Administration guide*.

Show Code / ShortDescription / LongDescription: Select **True** or False for these properties depending on whether you want to display or hide the **Code**, **ShortDescription**, and **LongDescription** for the table.

Field Mask Settings

The following properties are available for field masks. They are displayed when the **Predefined Content** parameter is set to **Field Mask**:

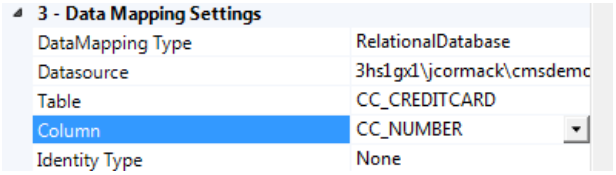


Field Mask: Click on the drop-down arrow in the Field Mask parameter and select a predefined field mask from the list.

Field Masks are saved in the Global Mask Validation Editor. *Refer to the documentation on Govern New Administration (GNA) for details*.

Data Mapping Settings

The following properties define the data mapping for the selected attribute. Typically, the attribute is mapped to a column in a Relational Database. If the attribute is stand alone; i.e., not mapped to a datasource, select **None** for the **DataMapping Type** and leave the other fields blank.



DataMapping Type

Select **RelationalDatabase** if the attribute is mapped to a datasource. Select **None** if the attribute is not saved to the datasource, but used to display a value that is not saved.

Datasource

Select the datasource containing the database table and column corresponding to the selected attribute. The attribute can be associated with a datasource that is different from the other attributes in the Business Entity.

Table

Select the database table containing the column that you are associating with the attribute.

Column

Select the column that corresponds to the attribute.

Identity Type

Select from the following options:

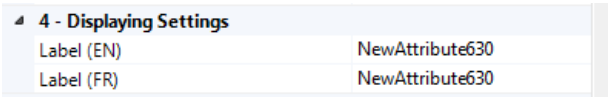
- **GovernIdentity** Select this option for attributes that are used to identify the record. Examples include the MA_AUDIT_ID, MA_LAND_ID, MA_

MISC_ID. The CAMA Audit, Land, and Miscellaneous Structure records are saved by these IDs in the Govern database.

- **None**: This is the default setting.

Display Settings

The Display Settings contain the Label property. Use this to define the text that you want to display beside the attribute on the Govern form, in order to identify the attribute.



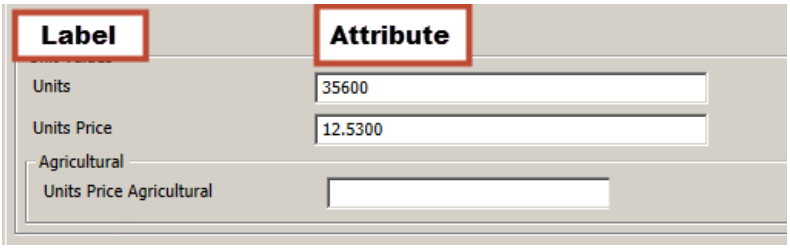
You can also add or modify the labels in the Govern OpenForms Designer (OFD). If you change the value in the OFD, the label is changed on the Govern form, but not in the BED.

By default, the automatically-generated name that was given to the entity when it was created is displayed in the label and description properties of the entity.

Label (EN) / Label (FR)

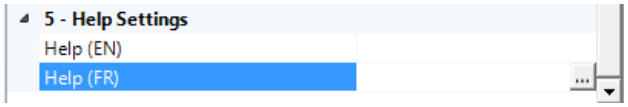
Enter the text for the label. You can enter the text in both English and French if required. By default, the label is displayed with the attribute on the Govern form. You can modify the position n the OFD.

The following screen shot shows the English labels beside the attributes or parameters on the Govern form.



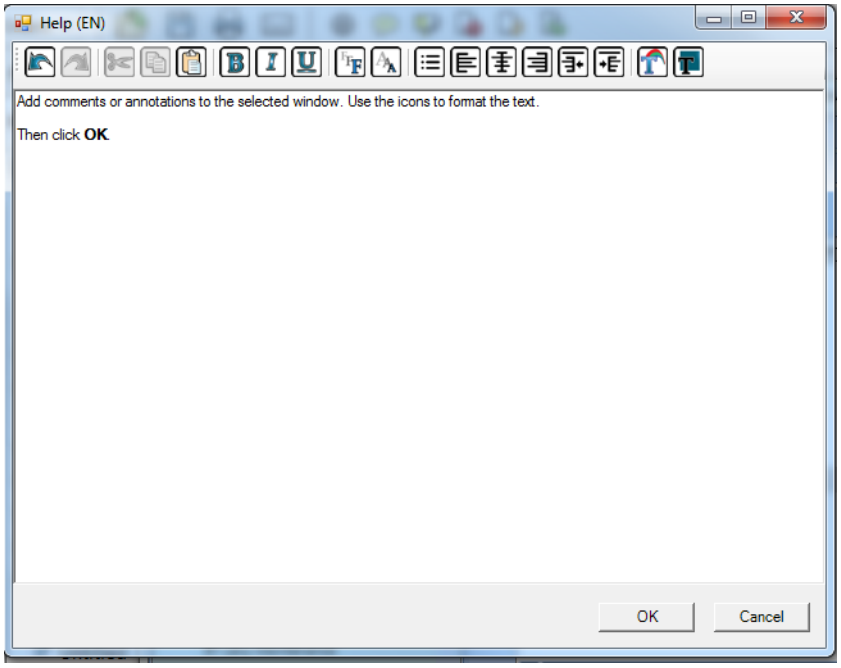
Help Settings

The Help is displayed when the user right-clicks on the field. Use the properties in this section if you want to add comments or annotations to the attribute.



To add Help annotations or comments:

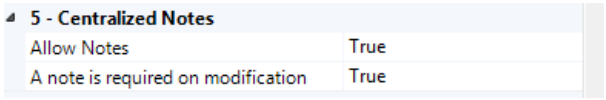
1. Click in the field beside the **Help** text.
2. Click the ellipsis button to open the Help window.
3. Enter the text that you want to appear on the selected window.



4. Click **OK**.

Central Notes

The Central Notes feature is used for recording the modifications made to attributes and to entities in a Govern form. It is displayed at the left of Govern window with the Forms Explorer and Dataset tree view.



You can link Central Notes to any attribute. You have the option of making the notes required or optional.

Optional

If the Central Notes feature is optional, the user can choose to add a note.

To make Central Notes optional for the attribute:

1. Launch the BED.
2. Verify the datasource and connection key.
3. Select **Model Explorer** > **Business Entities**.
4. Select the attribute to which you want to add optional Central Notes.
5. Open the Properties Explorer.
6. Set **Central Notes** > **Allow Notes** to **True**.
7. Set **Central Notes** > **Note is required on modification** to **False**.
8. Click **Save**.

Required

If the Central Notes feature is required, the user must enter a note after making a modification to the parameter. Otherwise, the form cannot be saved.

To make Central Notes required for the attribute:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select the attribute to which you want to add required Central Notes.

4. Open the Properties Explorer.
5. Set **Centralized Notes** > **Allow Notes** to **True**.
6. Set **Centralized Notes** > **Note is required on modification** to **True**.
7. Click **Save**.

The next time you open the form in Govern.

- The Required Notes icon is displayed on the form.
- If the user makes a modification to the attribute, the Central Notes displays red for the attribute that is required.
- If the user tries to save the form without adding an entry to Central Notes, a message appears.
- The field is outlined in yellow to indicate that a note is required. It is also outlined in red to indicate that required information is missing.

Note: If Govern is already open, you need to close it and reopen it in order to see the modification.

In order to save the modification to the form, the user must:

1. Click **OK** the message.
2. Click inside the parameter that was modified and add the entry to the Centralized Notes editor.
3. Click the **Save** button on the form.

Chapter 6: Managing Validation Rules

Overview

You can apply Validation Rules to an entity or to one or more attributes within an entity. This can help to ensure that data entries are valid. Although they cannot guarantee that the data entered really does correspond to actual data, validation rules can ensure that your users have entered all the required components, that their entries fall within a reasonable range and that they follow a logical sequence.

This chapter provides procedures for:

- Creating and Removing Validation Rules
- Defining Validation Rule Properties

And two scenarios:

- Validating a Date
- Using a Validation Rule to Compare Dates

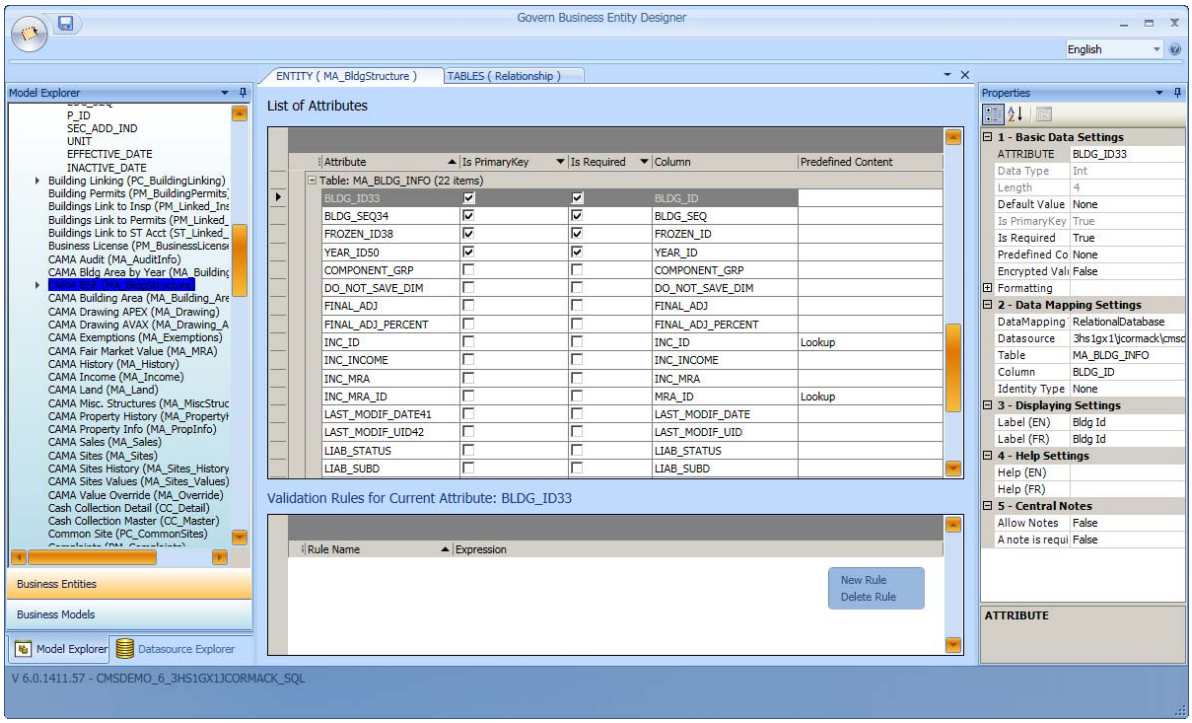
Note that you can also perform a validation without creating a validation rule. For example, to ensure that users are entering data in a field, set the **IsRequired** property for the Attribute to **True**. You can also define a default value. For further details, see *Defining Attribute Properties on page 66*.

Creating Validation Rules

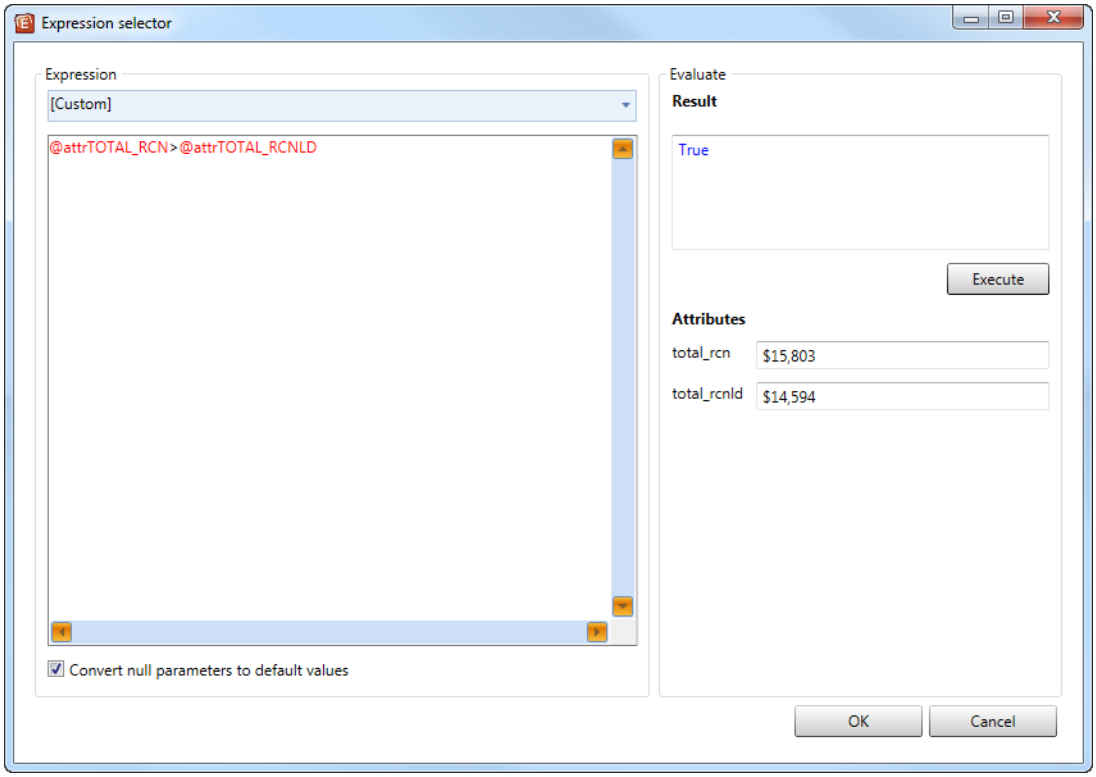
Validation Rules can be created for a business entity or an attribute. They are based on attributes. You can view the validation rules that are already written for an entity in the Validation Rules section of the BED interface. Similarly, you can view the rule, if you select one of the attributes.

To create a Validation Rule for a Business Entity:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entity**.
3. Open the Business Entity to which you want to apply the validation rule.



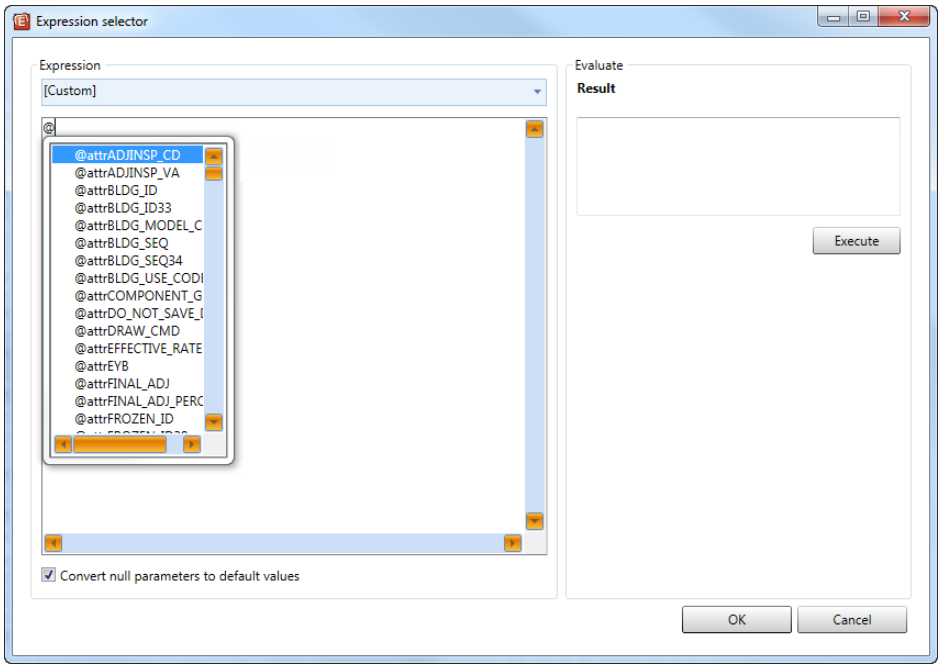
4. Right-click inside the Validation Rule pane and select **New Rule**.
5. Select the new rule fields so that you see the Validation Rule properties in the Property Explorer.
6. Enter a name for the rule in the **RULE** field.
7. Click the ellipsis button in the **Expression** text box to display the Expression Selector.



The expression in the preceding screen shot can be used as an example. This expression verifies that the Total Replacement Cost New (RCN) of the selected building is greater that the Total Replacement Cost New Less Depreciation (RCNLD).

8. Click inside the **Expression Selector** field and begin entering the expression. As you type, a tooltip displays the syntax for the expression type. Alternatively, hit `[Ctrl] + space` to see a list of all the expression types. *For more information on expressions, see Calculated Field Data Settings on page 76*.

   To follow this example, hit the commercial at (@) sign on your keyboard. A list of the attributes in the current entity is displayed.



This is a simple expression with two attributes and the greater than comparison operator.

9. Complete the expression.

   The attributes that are used in the expression are listed on the right under **Attributes**.

10. Enter typical values in the attribute fields to test the expressions.
11. Click **Execute**.

    Expressions used for validation rules evaluate to true.

12. Ensure that True is displayed in the Result field.
13. Click **OK**.

    For further information, see:

    - Calculated Field Data Settings on page 76
    - NULL Parameters on page 100.
    - Viewing Validation Rule Properties on page 95.

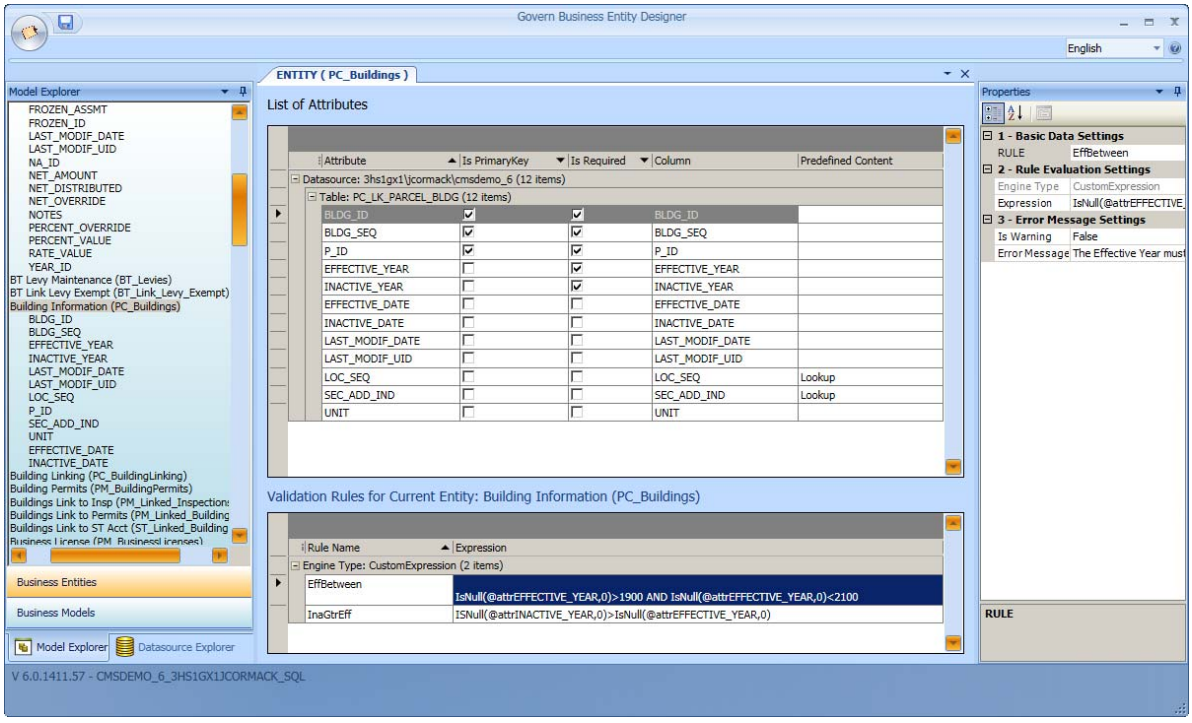
Removing a Validation Rule from the Business Entity

To remove a Validation Rule from the Business Entities tab:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Select the Business Entity with the validation rule that you want to delete.
4. Right-click on the validation rule in the Validation Rules pane.
5. Select **Delete Rule**. A confirmation dialog box appears.
6. Click **Yes** to complete the procedure.

Viewing Validation Rule Properties

The key validation rule properties, for the selected entity or attribute, are displayed in the Validation Rules list box in read-only format. To view the complete set and to define or update key properties, use the Properties pane.



All validation rules are created with expressions. By default, the Rule Name and Expression are displayed. You can display the Validation ID and Engine Type.

Validation ID: Displays an automatically generated number that cannot be modified. This field is hidden by default.

Rule Name: You have to enter a name for your validation rule when you create it. This is displayed at the bottom of the interface and in the Properties Explorer.

Engine Type: At this time, the Engine Type is Custom Expression for all validation rules. This field is hidden by default.

Expression: Displays the full expression as written for the validation rule.

Is Shared: At this time, this field displays **False** for all validation rules.

Creating the Expression

In Govern OpenForms, version 6 and above, validation rules are created with expressions. These are statements that can be used to perform a number of tasks, such as displaying an attribute or Govern ID on a form, performing a calculation, displaying a default value, adding formatting to a value, or ensuring that data are valid. This latter type of expression evaluates to true or false.

For more information on associating an expression with an attribute, see Adding an Expression on page 77.

Examples of Expressions for Validation Rules

You can write an expression to compare fields and ensure that entries make sense.

Comparing Two Fields

The following expression is used to ensure that the Inactive Year of a record is greater than the effective year:

```
@attrINACTIVE_YEAR>@attrEFFECTIVE_YEAR
```

This validation rule is applied when you click **Save** on the building record. If it is true for the current record, the record is saved. If it is false, the following warning is displayed:.

```
The Inactive Year must be greater than Effective Year.
```

Validating that a Date Falls within a Logical Range

This expression ensures that the effective year of the building is within a logical time frame.

```
@attrEFFECTIVE_YEAR>1900 AND @attrEFFECTIVE_YEAR<2100,0
```

Ensuring that a Value is Valid

This expression ensures that the Building ID is greater than 200, the number used for building IDs in a specific year in an organization.

```
@attrBLDG_ID > 200
```

Adding a Validation Rule

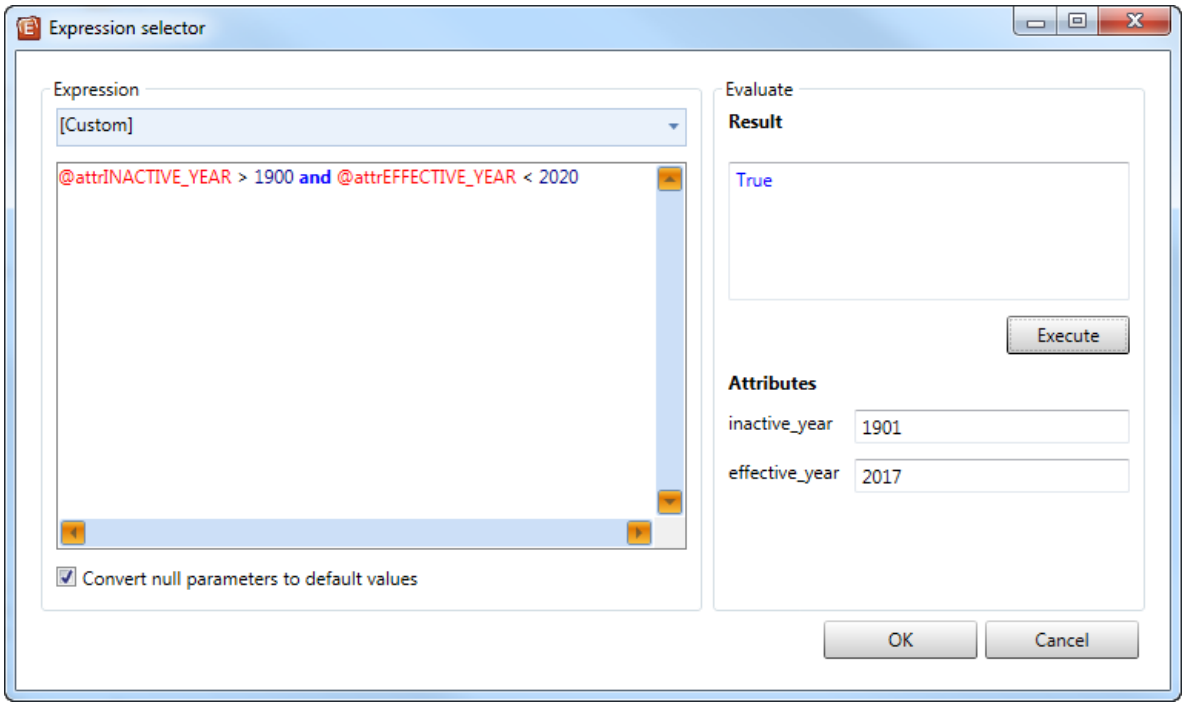
This procedure for adding a validation rule is as follows. A validation rule can be added to an attribute or an entity.

To use this expression for the validation rule:

1. Launch the BED.
2. Select **Model Explorer** > **Business Entities**.
3. Open the entity.
4. Enter a name for the validation rule.

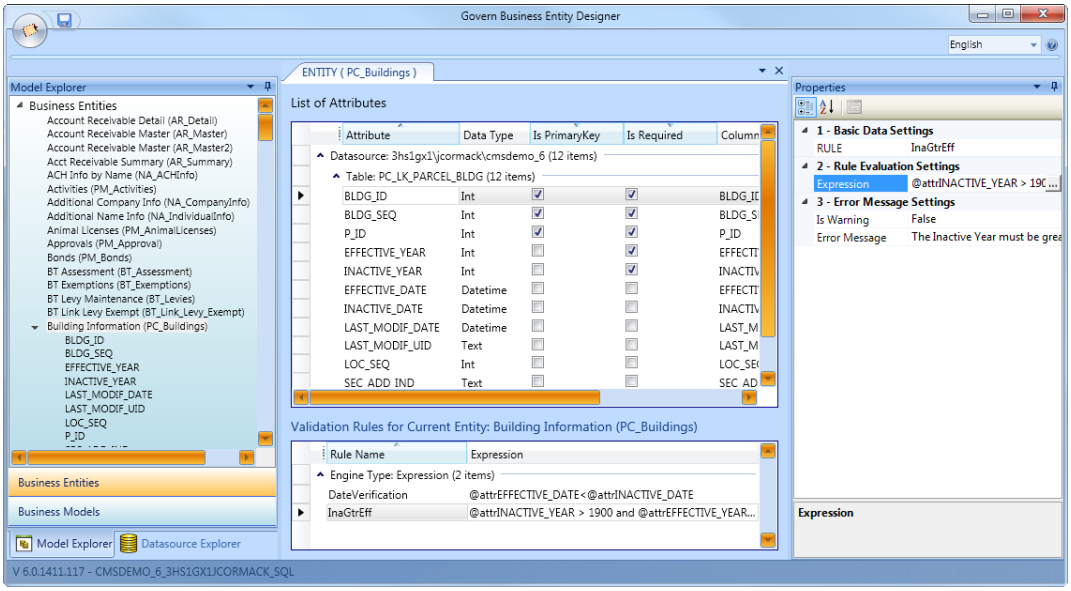
   ```
   Spaces are not accepted in the validation rule name.
   ```

5. Select the ellipsis button in the Expression field. This opens the Expression Selector.



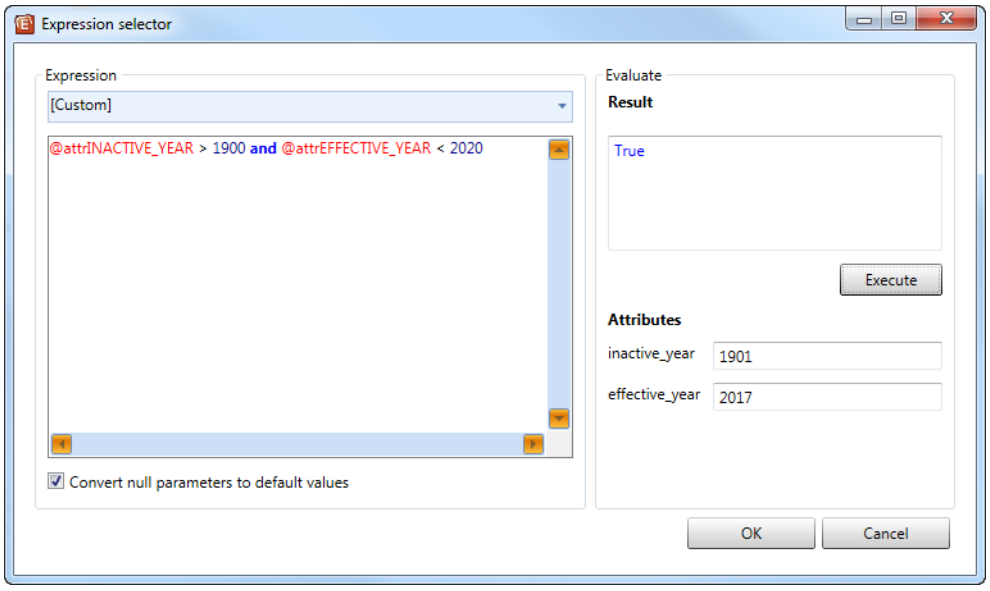
6. Enter the expression in the Expression Selector.
7. Click **OK**.

When you save the expression, it is displayed in the list of validation rules and in the Property Explorer.



Testing the Expression

You can test the logic of an expression at any time in the Expression Selector with sample values. You can also see how it works in Govern in real time.



To test the expression in the Expression Selector:

1. Enter sample values in the attribute fields.

   Fields for the attributes that are used in the expression are displayed on the right of the Expression Selector.
2. Click **Execute**.
3. Ensure that the **Result** is **True**.

NULL Parameters

The Expression Selector has an option for converting NULL values to default values. When this option is selected, a default values is used in order to evaluate the expression whenever the user leaves a field blank.

For example, the default for a date is 07/01/001.

The default value is not displayed on the form or saved in the database. It is only used to calculate the expression.

You can test how the option is applied to your expression by selecting and deselecting the option and viewing the result.

Adding an Error Message

You can add an error message to a validation rule.

To add an error message.

1. Select the Validation Rule.
2. Ensure that RULE is displayed in the Properties Explorer.
3. Select **True** or **False** from the **Is Warning** field depending on whether yu want to display the message when the result of the expression is true or false for the data entered on the form.
4. Enter a message in the **Error Message** field. This is displayed when invalid data are entered. For example, The date must be between 1900 and 2020.
5. Click **Save**.

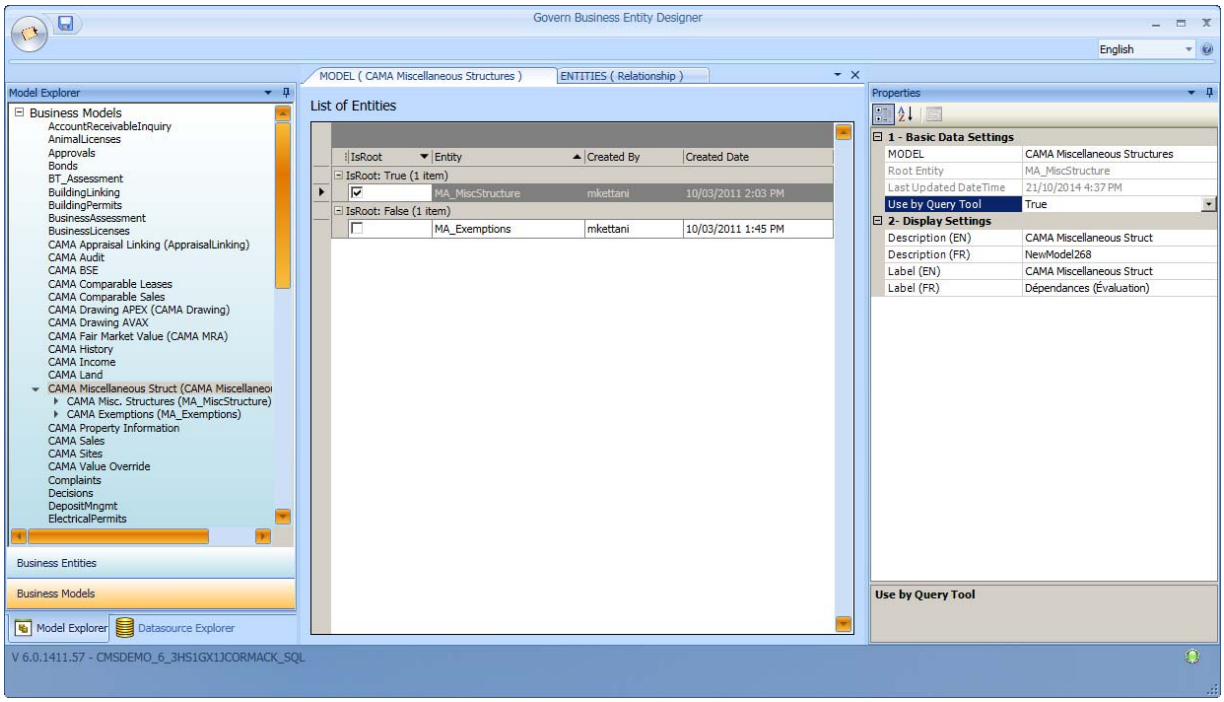
Chapter 7: Managing Business Models

Overview

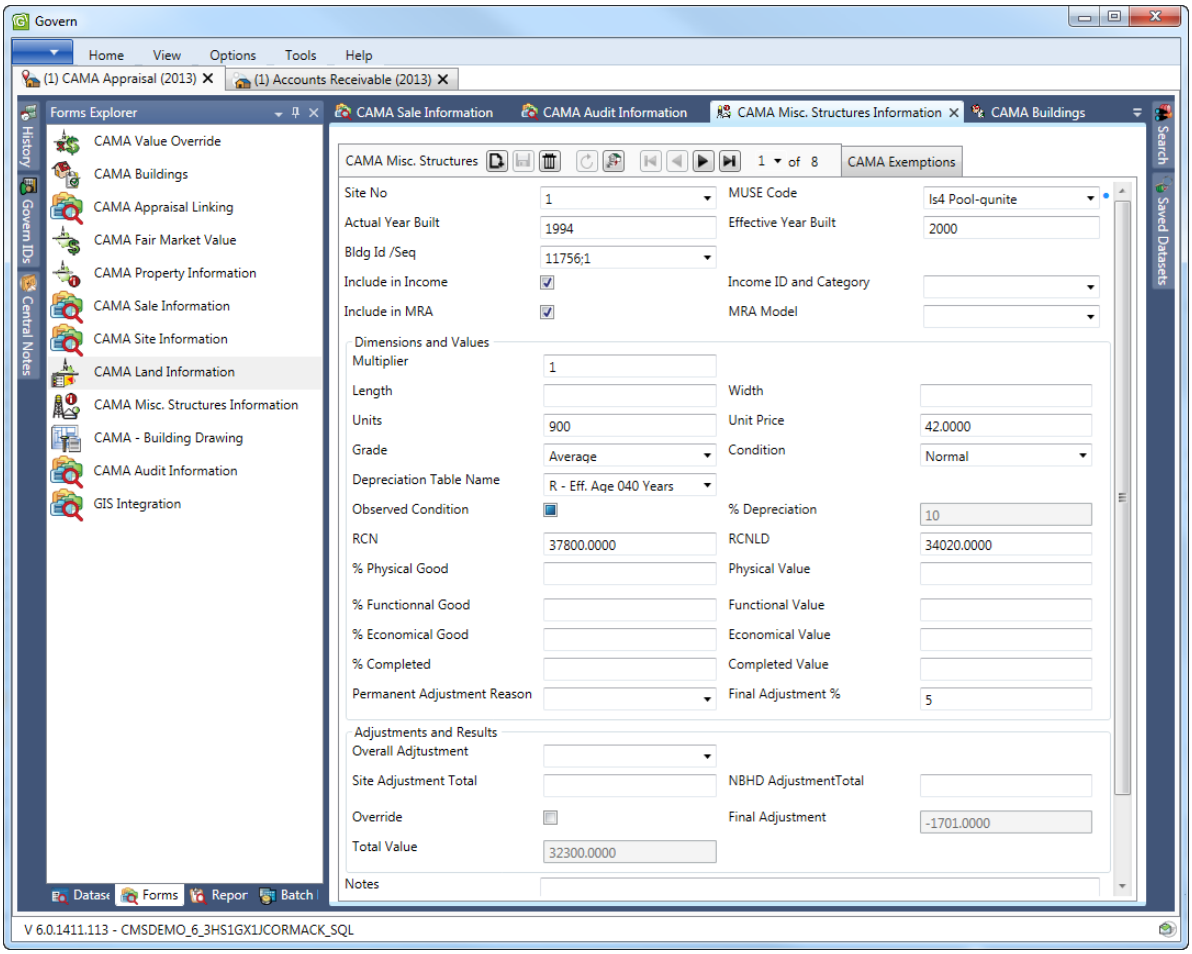
Business models are used for grouping the business entities together. They are, in fact, a requirement. Any entity that you want to see on a Govern user form or use in the QueryTool has to be added to a business model.

One entity is set as the root. This is the first entity that users see when they open a form in Govern. The other entities in the model appear as separate tabs.

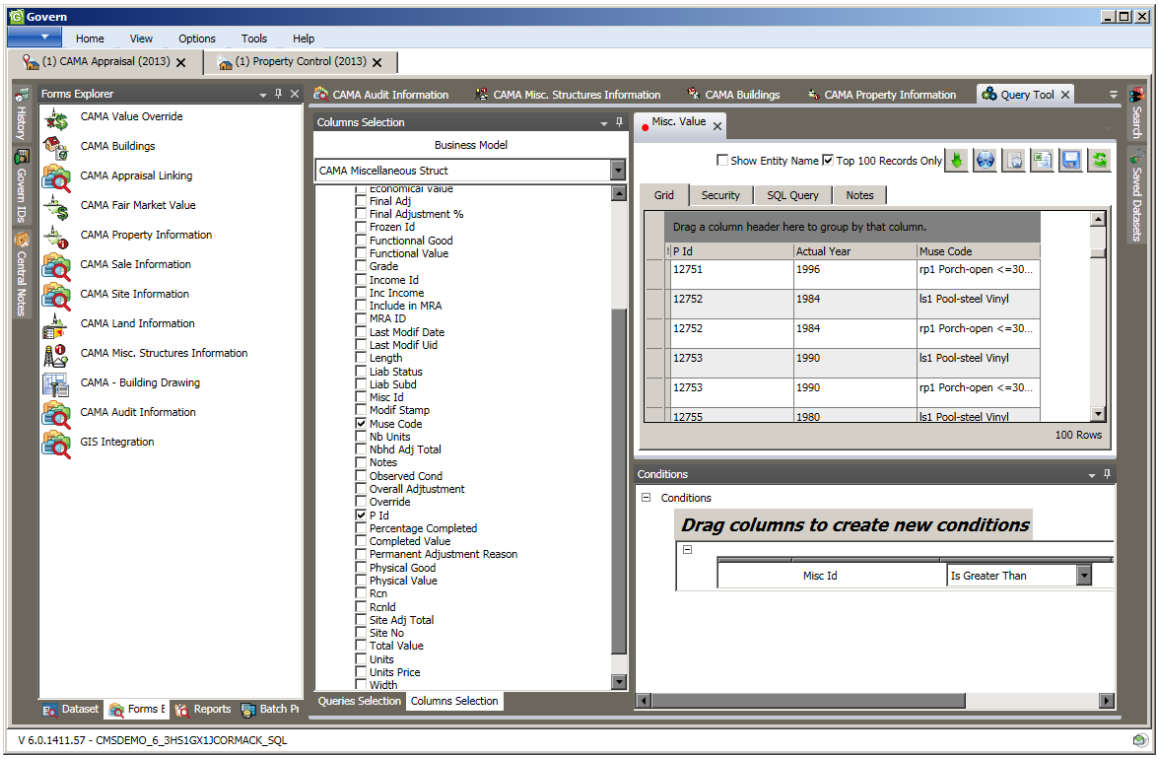
The following screen shot shows the CAMA Miscellaneous Structures business model open in the BED. This model has two entities: MA_MiscStructure and MA_Exemptions. The first is the root entity.



The next screen shot displays the CAMA Misc. Structures Information form open in Govern. The CAMA Misc. Structures entity is the root entity and is the first entity that the user sees when opening the form. The CAMA Exemptions entity appears on a second tab.



The next screen shot shows the Miscellaneous Structures model open in the Govern QueryTool.



For the Govern user forms, entities are grouped together, typically, because they contain the same type of information and are used together in a single form. For example, the real estate tax assessment, history, tax audit, levy, and exemption entities are grouped together because they contain similar information; i.e., the information required for completing a tax assessment. The Tax Assessment entity is the root.

For the QueryTool, any entities that you want to use in a query need to be added to a model. You can run a query on a single model only. Therefore, you may want to create new models for the QueryTool.

The next sections describe how to:

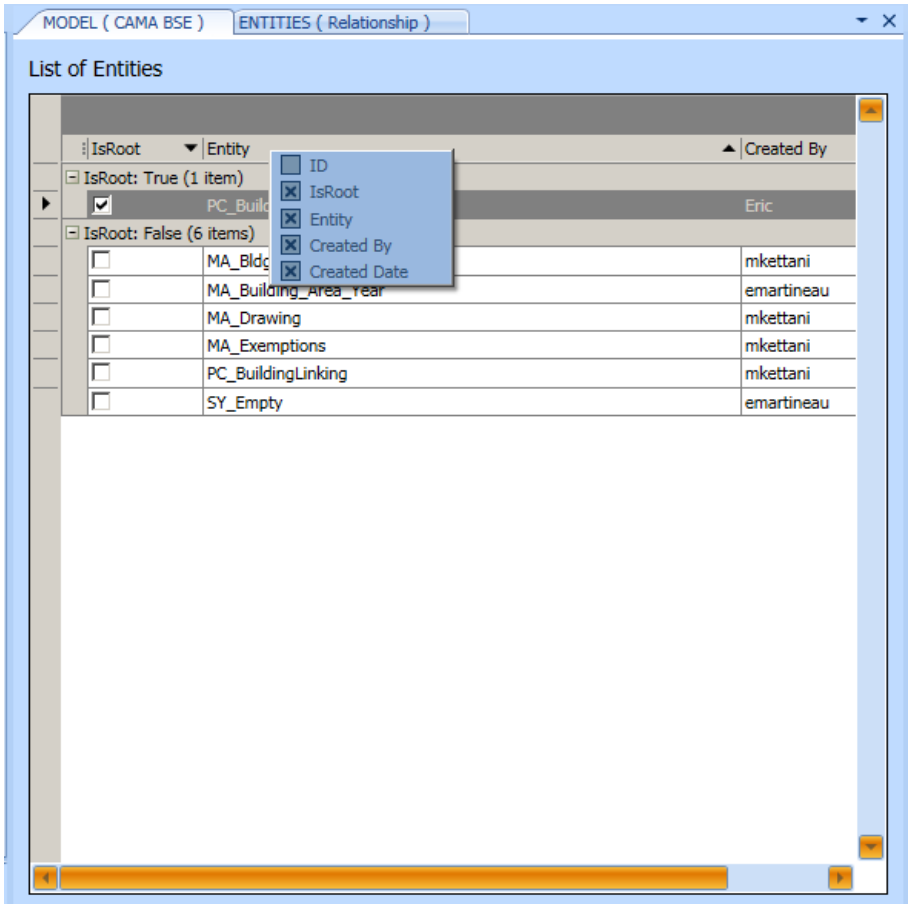
- What's New
- Creating Business Models.
- Add Business Entities to your Business Models.
- Set the Root Entity for the Business Model.
- Set Properties for the Business Model.
- Define the Entity Relationships in the Business Entities.
- Define Properties for the Business Entity Relationships.

What's New

New Look

The Business Entity Designer Editor has a new look and feel. The new grid layout makes better use of the space. It also provides more options for grouping, sorting, and filtering information.

The following screen shot displays the editor.



The Root Entity is displayed at the top. Then, entities are displayed in alphanumerical order. You can choose which columns to show or hide. For example, the ID column is hidden by default. However, the entity ID can be useful for debugging purposes. It is also displayed with the entity when you import models in Govern New Administration (GNA).

The IsRoot, Entity, Created By, and Created Date are shown, by default. You can remove any of these columns from view. To show or hide a column, right click on the columns at the top of the list. Then select the column that you want to show or hide. If it was shown, it will be hidden. If it was hidden, it will be shown.

You can click on any column in order to sort by that column.

Creating a Business Model

Prerequisites

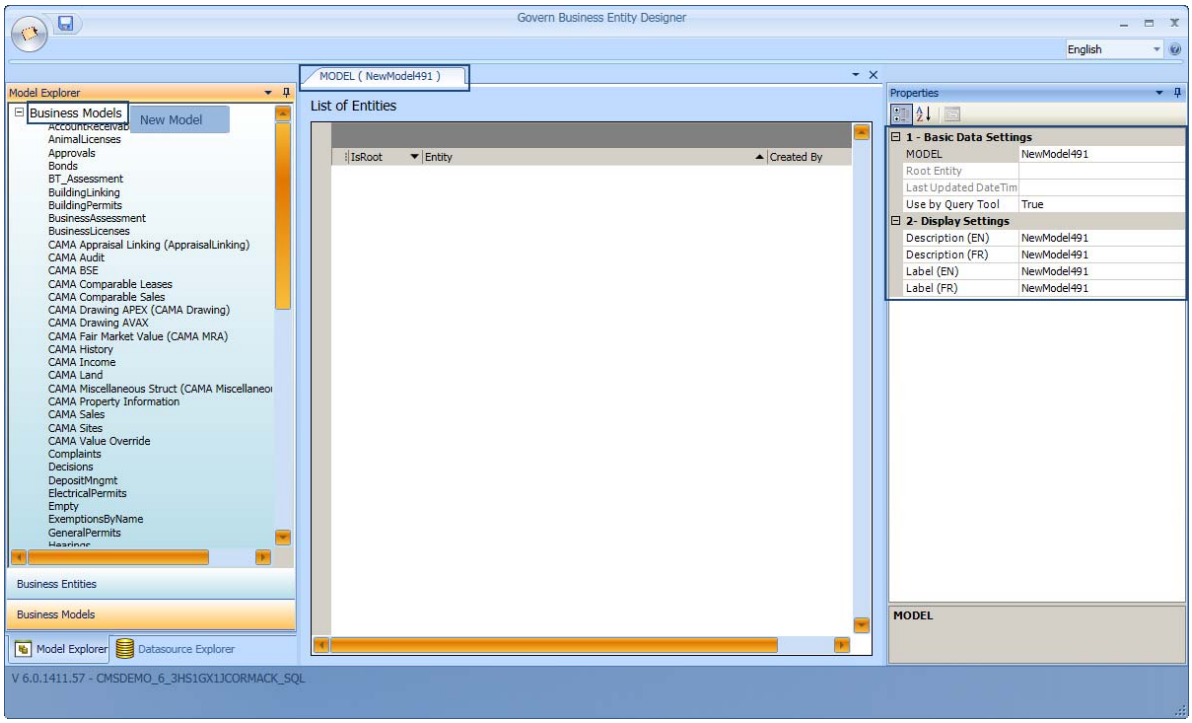
Before creating a business model, ensure that you have:

- Loaded your datasource: *See Managing your Datasources for the Deployment on page 28*
- Created your Business Entities. *See Managing Business Entities on page 38*.

Procedure

To create a Business Model:

1. Launch the BED.
2. Select the **Datasource Explorer** and verify the datasource and connection key are correct.
3. Select the **Model Explorer**.
4. Select the **Business Models** tab.



5. Right click on **Business Models** at the top of the **Model Explorer**.

   A context-sensitive menu is displayed.

6. Select **New Model**.

   The automatic name: NewModel, followed by a system-generated number is displayed at the top of the BED Editor and in the Properties Explorer beside the Model, Description, and Label properties.

7. Enter a new name, description, and label.
8. Click **Save**.
9. If you want to use the model in the QueryTool, select **True** in the **Use by QueryTool** property.
10. Click **Save**.

Once the entity is created, the name of the root entity is displayed with the date and time of the last update.

Tip: When you select an existing model to view the properties, ensure that **Model** appears at the top of the Properties Explorer. If an entity is selected, the word **Entity** appears at the top.

Details on the other Business Model properties are provided in the following section. *See Summary: Viewing Business Model Properties on page 112*.

Deleting a Business Model

To delete a business model:

1. Right-click on the entity that you want to delete.
2. Select **Delete Model**.
3. A confirmation message appears.
4. Click **Yes** to continue.

Setting Up / Modifying a Business Model

Perform the following steps to set up your business model:

- Add the required business entities.
- Set the root entity.
- Set the Use by QueryTool property.

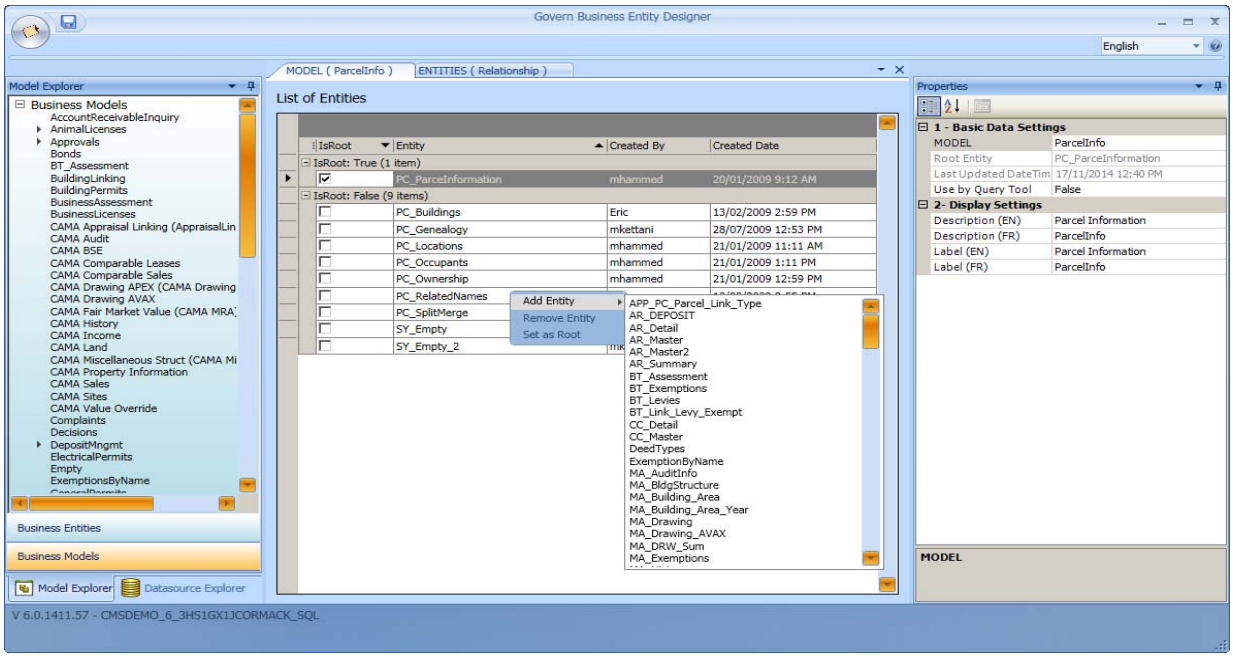
You can modify any of these at any time.

Adding Business Entities to a Business Model

After creating a new business model, naming it, and adding the labels and descriptions, you are ready to add the required business entities to it.

To add entities to an existing Business Model.

1. Select **Model Explorer** > **Business Models** in the BED.
2. Select the Business Model to which you want to add the new entities.



3. Right-click anywhere inside the List of Entities pane.
4. Select **Add Entity** from the context-sensitive menu.

   A new context-sensitive menu appears. This menu displays all the entities that exist in the selected datasource.
5. Select one of the entities from the list.

Configuring the Root Entity

You need to set one entity in each business model as the root. There can be only one root entity.

In Govern, the user forms open automatically to the root entity. Records are loaded to the root entity according to the System ID and ID Setters defined for the root entity. All other entities are linked to the root entity by a key ID.

For the QueryTool, you can perform a search on the root entity or any of the child entities in the business model. *For further details about the QueryTool, refer to the Govern QueryTool guide*.

Rules for Root Entities

The following rules or conditions apply for setting the Root Entity:

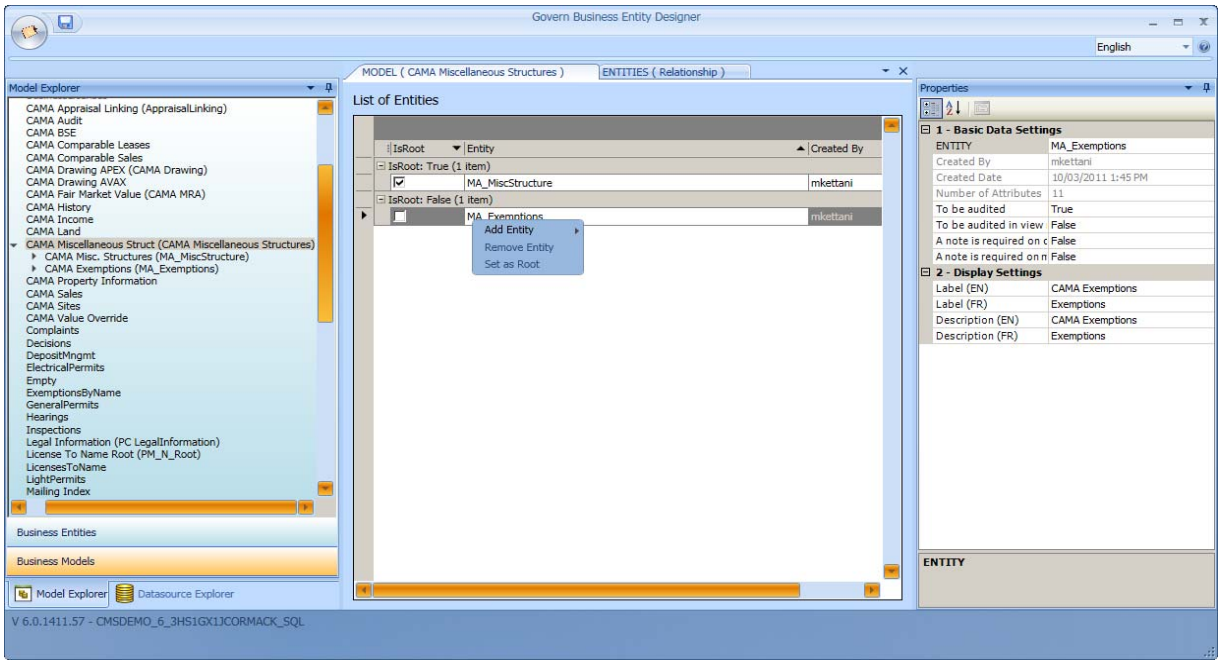
- Each Business Model can have only one Root Entity. This is the entity that appears when you open the form, usually the first tab.
- Each Business Model must have one Root Entity.
- The Business Entity selected as the Root Entity must have a Primary Key.

Setting the Root Entity

To set an entity in the Business Model as the Root Entity:

1. Select **Model Explorer** > **Business Models** in the BED.
2. Select the Business Model from the tree view on the left.

   The Business Model properties are displayed under List of Entities in the center pane.



3. Right click on the Business Entity that you want to set as the root.
4. Select **Set as Root** from the context-sensitive menu.

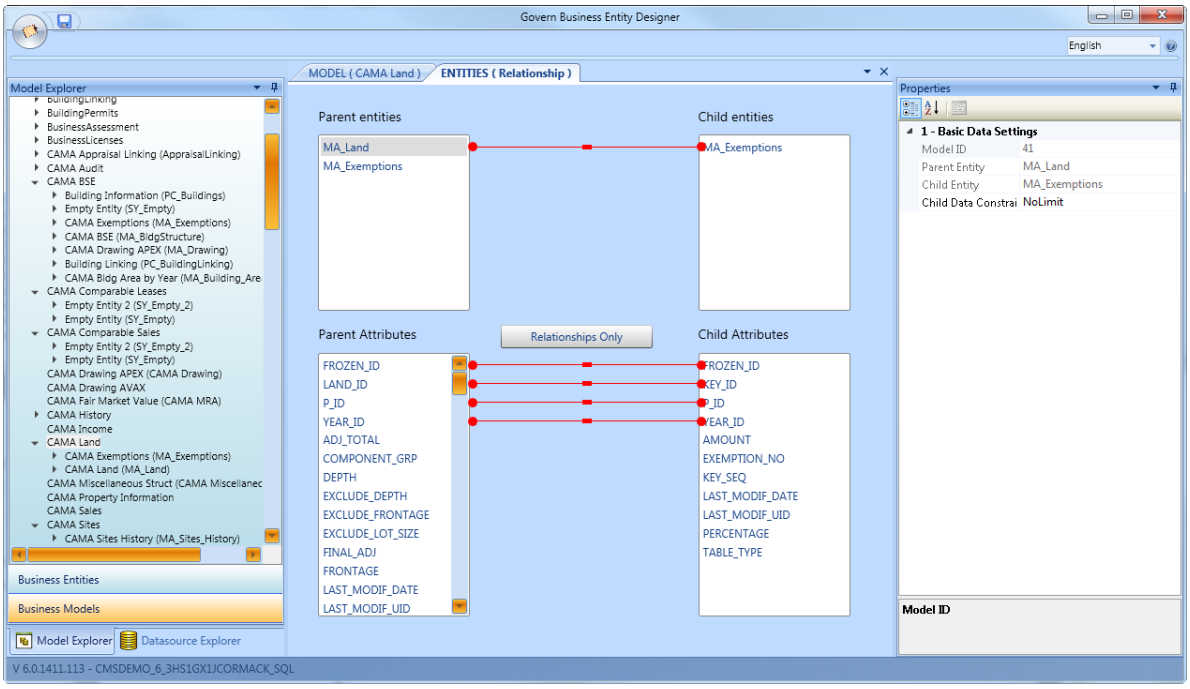
5. Click **Save**.

Note: You can change the Root Entity at any time, using the same procedure. If you change the root entity, you also need to verify the entities relationship and the configuration in the OFD.

Only one entity can be the root entity. If you set a new entity as the root, the previous root becomes a child entity.

Defining Relationships between Entities in a Business Model

Select the **Entities (Relationship)** tab to see how the business entities are connected in the selected business model. This tab displays list boxes for the entities and the attributes: Parent entities, child entities, Parent attributes, and child entities. Links are formed between the Parent entities and the child entities. These are displayed in red.



Links are formed between the Parent and Child Entities between the key attributes. The configuration of the form is made on the root or parent entity. For example, in the preceding screen shot, MA_Land is the root entity. The

results of searches are loaded to the root entity. You need to specify how information is loaded between the parent and child entity.

Creating Links Between Business Entities

The Entities (Relationship) tab is automatically created as soon as a second business entity is added to the business model. The links have to defined manually.

To define a link between business entities:

1. Select **Model Explorer** > **Business Models** in the BED.
2. Select the **Entities (Relationship)** tab.

   All the entities in the Business Model are displayed in both the Parent Entities and the Child Entities columns, with the exception of the Root Entity. By default, this is displayed in the Parent Entities column only.

   When you select an alternate Business Entity, that entity is displayed in the Parent Entities column and the Root Entity is displayed in the Child Entities column.
3. Select the entity from which you want to create a link in the Parent Entities column.
4. Select the entity that you want to link in the Child Entity column.

   The Primary Keys for the selected Parent Entity and the selected Child Entity are displayed in the Parent Attribute and Child Attribute columns respectively.
5. Drag the Primary Key from the Parent Attribute to the Child Attribute column.

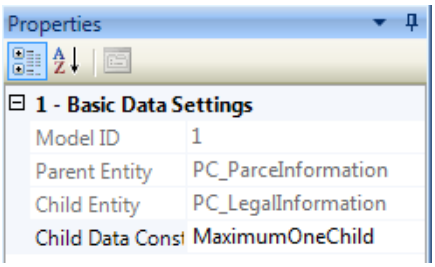
   The link is displayed in red in both the Attributes and the Entities sections.

Defining Properties for the Business Entity Links

To view the Business Entity relationship properties:

1. Select **Model Explorer** > **Business Models** in the BED.
2. Select a business model with relationships between entities.
3. Select a business entity with relationships.

The properties are displayed in the Properties window on the right, under Basic Data Settings.



ModelID: The ModelID is automatically generated when you define a relationship between Parent and Child Attributes. It cannot be modified.

Parent Entity: This field displays the name of the selected Parent Entity, if a relationship is defined with a Child Entity.

Child Entity: This field displays the name of the selected Child Entity, if a relationship is defined with the selected Parent Entity.

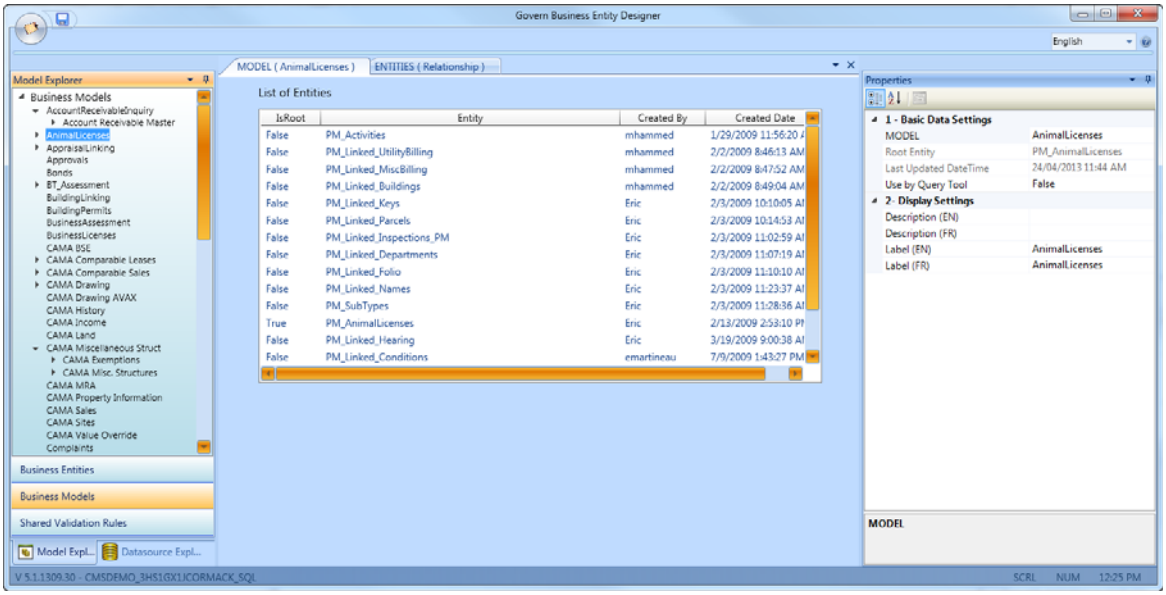
Child Entity Constraint: This field is used to define the number of records required for the selected Child Entity when it is associated with the selected Parent Entity. Select one of the following.

- **No Limit**: Select this option if there is no requirement for the minimum or maximum number of records. This is the default.
- **MaximumOneChild**: Select this option if only one record can be entered but is not required. This is illustrated in the preceding screen shot. In the Parcel Information Model, only one legal description can be associated with each parcel However, the legal description is not required.
- **ExactlyOneChild**: Select this option if a record is required for the selected entity and the entity cannot hold more than one record for each item.
- **MinimumOneChild**: Select this option if a record is required for each item, but more than one record could be added per item.

Summary: Viewing Business Model Properties

To view the Business Model Properties:

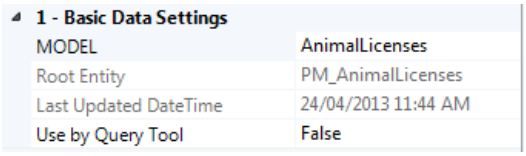
1. Select **Model Explorer** > **Business Models** in the BED.



2. Select a Business Model in the tree view on the left.

Properties are displayed in the Properties window on the right, under Basic Data Settings and Display Settings.

Basic Data Settings



MODEL: This field displays the name of the selected Business Model. When you create a new model, it is automatically assigned a system- generated name and displayed in this field.

To change the name of the current Business Model, overwrite the value in the MODEL parameter.

Root Entity: This field displays the name of the entity that is set as the Root Entity. For details, see *Configuring the Root Entity on page 108*.

Last Updated DateTime: This field is provided for informational purposes. It displays the date and time of the last modification, according to the Regional Settings set in Windows Control Panel on the server.

Use by Query Tool: Select **True** if you want to create searches on the current Business Model in the Govern Query Tool.

Display Settings

The display settings define how the Business Model is presented to the end-user.

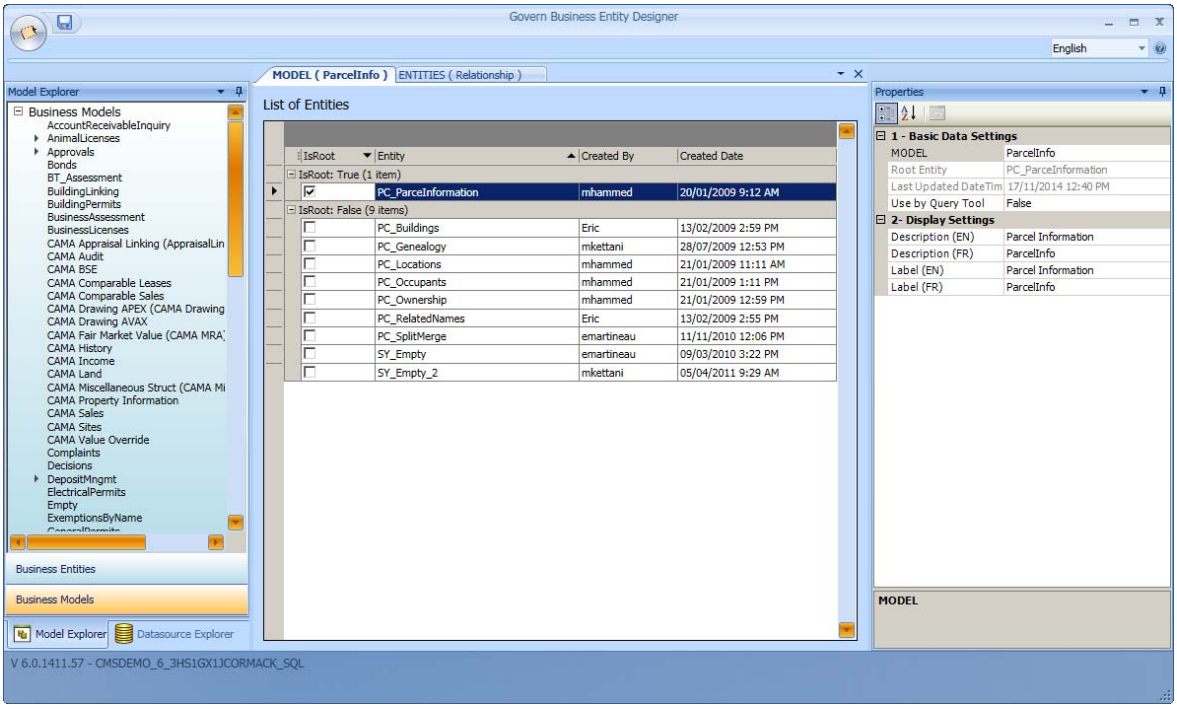
Description (English / French): Enter a description to display with the Business Model on the form, if required.

Label (English / French): Enter the text to display for the Business Model on the form.

Business Entity Properties

List of Entities

The following properties are displayed for the Business Model, under List of Entities when you select an entity in the Business Model tab of the Model Explorer.



Is Root: This column displays the status of the entity as a root entity or a child. This flag can be set to **True** or **False**. The root entity is the first entity that appears when the user opens the form.

Only one business entity in the business model can be the root entity. This is the point of entry for the form. All searches are performed on the root entity.

By default, the first entity that you add to the business model is the Root Entity. *See Setting the Root Entity on page 109* for instructions on setting another entity as the root entry.

Entity: This field displays the name of the business entity. When you create a new entity, it displays a system-generated name. Overwrite this name. To facilitate management, it is recommended to give the entity the same name as the corresponding database table.

Created By: This column displays the user name of the person who created the entity.

Date Created: This column displays the date the entity was created.