PNMsoft Knowledge Base

Sequence User Guides

UX Studio Advanced Queries and Data Model

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Advanced Queries and Data Model Concepts

Adding a Stored Procedure Query

The Data Model wizard enables you to define a query whose data is retrieved from a Stored Procedure. This data could be used to populate a combo box on your form.

First you select the stored procedure, define its input parameter values and then build the query structure based on its return values.
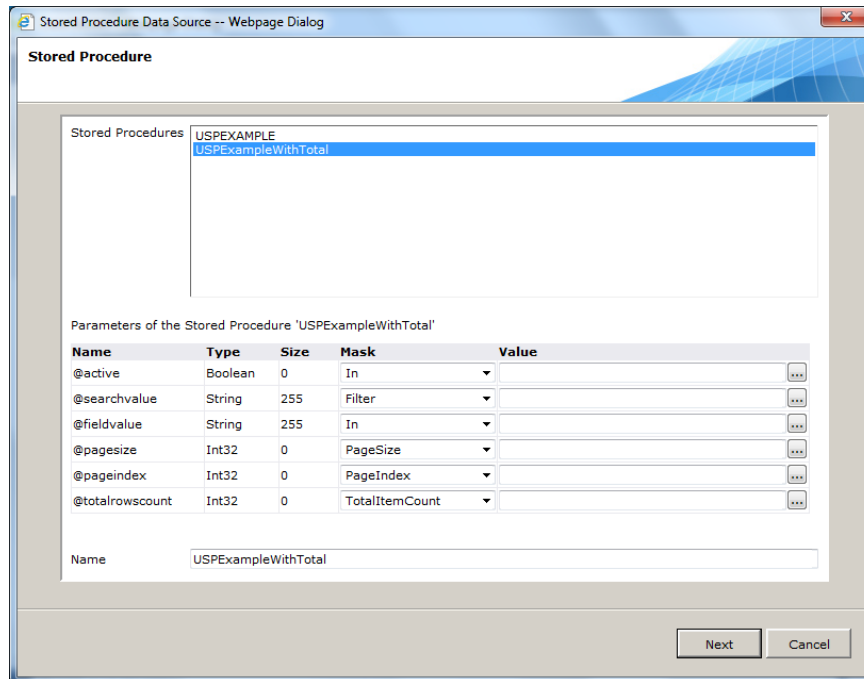
To add a Stored Procedure query to the Data Model:

1. In the Data Model wizard, select **Add > Stored Procedure**.
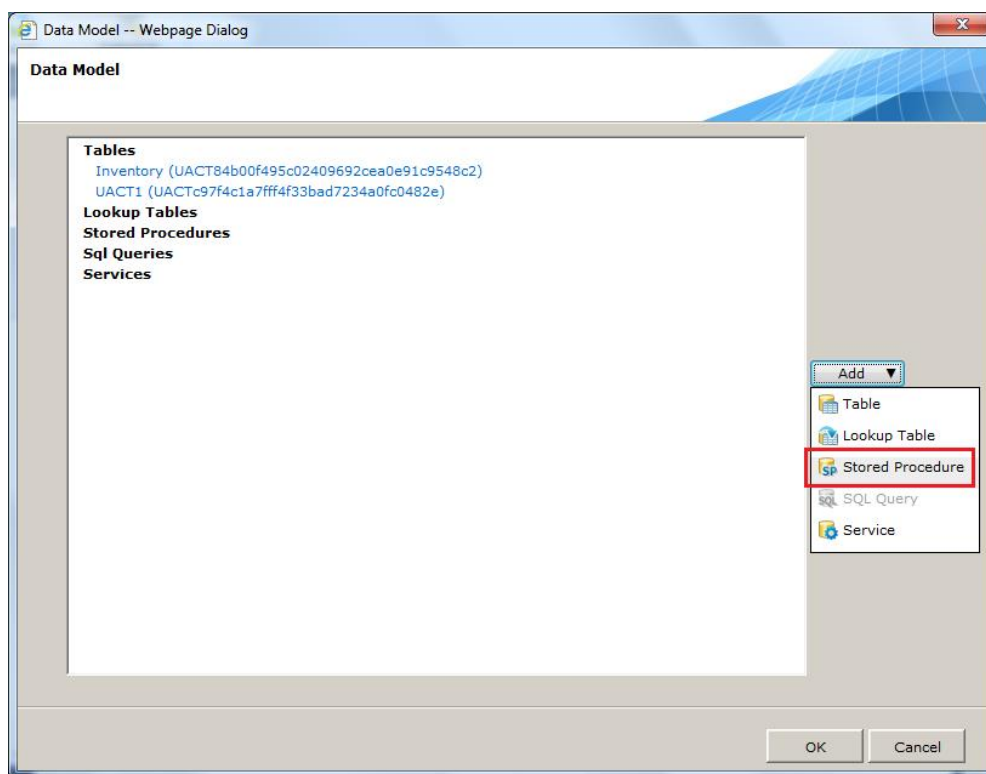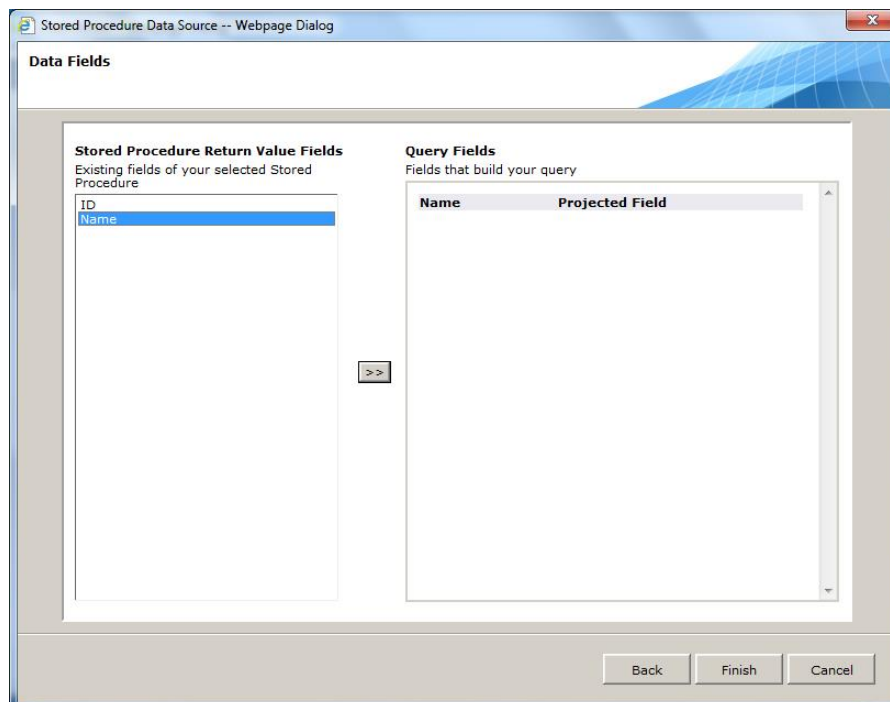

Data Model – Add Stored Procedure

2. The *Stored Procedure* screen appears. Select the Stored Procedure you want to add. Its parameter details are displayed.

   Note: Stored Procedure names must begin with the prefix USP.

Stored Procedure Screen

3. In the Value field, you can click ![...] to define the value based on an expression.

   The **Mask** enables Sequence to know what data to receive from the client and to which parameter of the Stored Procedure to pass this data based on its type (input, filter, pagesize, etc.). Sequence gives a default mask to each parameter based on its name. If this type is incorrect, edit it from the **Mask** dropdown list.

4. Click **Next**. The *Data Fields* screen appears.

Data Fields Screen

5. Add Stored Procedure Return Value fields to the list of your Query Fields by selecting them and clicking `>>` . The **Name** is the field name in the query, and the **Projected Field** is the parameter name from the Stored Procedure.
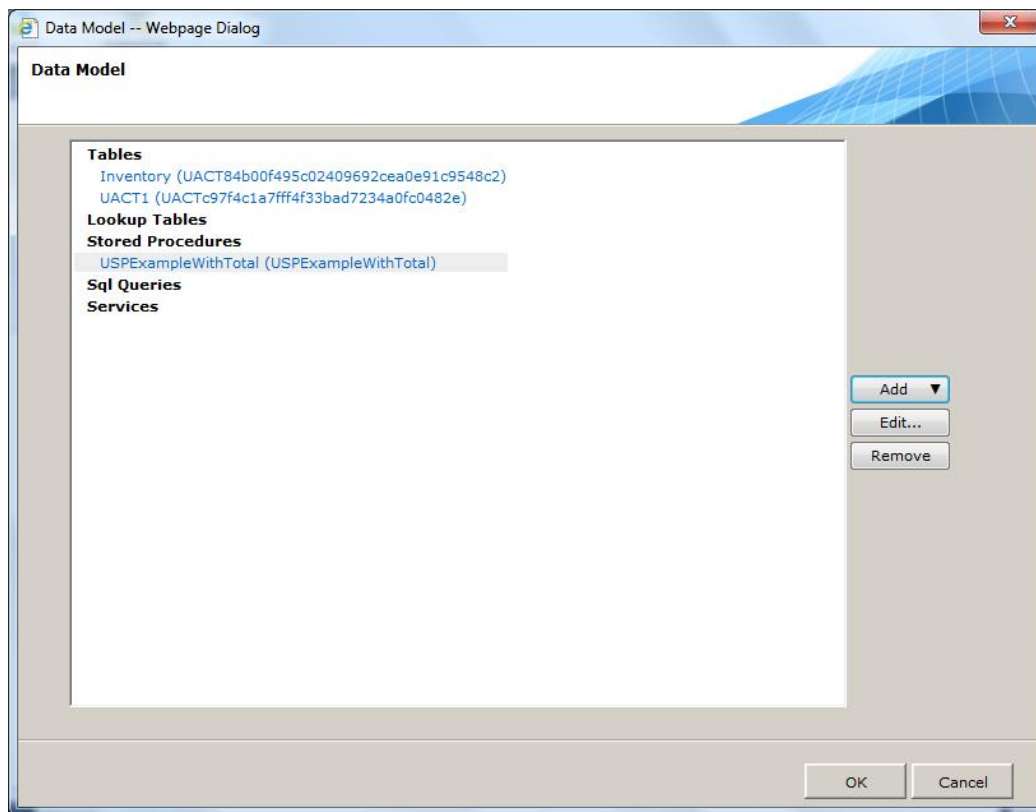
   Added fields can then be used a part of your form's data model, for example to display a return value in a form field.

6. Click **Finish**. The Stored Procedure query is defined and appears in the Data Model. You can now use it as a Data Source for fields on your form.

Data Model – Stored Procedure Defined

Adding a Service Query

The Data Model wizard enables you to define a query whose data is retrieved from a Service.

. You can add the following types of Service Queries:

- Web Service Consumer
- WCF Consumer
- External Service Consumer
- Dynamics CRM Service Provider
- REST Service Consumer Provider
- SharePoint Service Provider (can be used to retrieve CAML query results from v8.1)
- SAP Consumer Provider

In each case, you define the connection to the service, set its input parameter values, and then the build the query structure based on its return values.

Since each service definition is quite similar, the example below shows how to add one type, a Web Service Consumer. For more information on each service, refer to the Knowledge Centre.

To add a Service query to the Data Model:

1. In the Data Model wizard, select **Add > Service**.

Data Model – Add Service

2. The *Query Data Source* screen appears. From the **Provider** dropdown list, select the type of service you want to add:
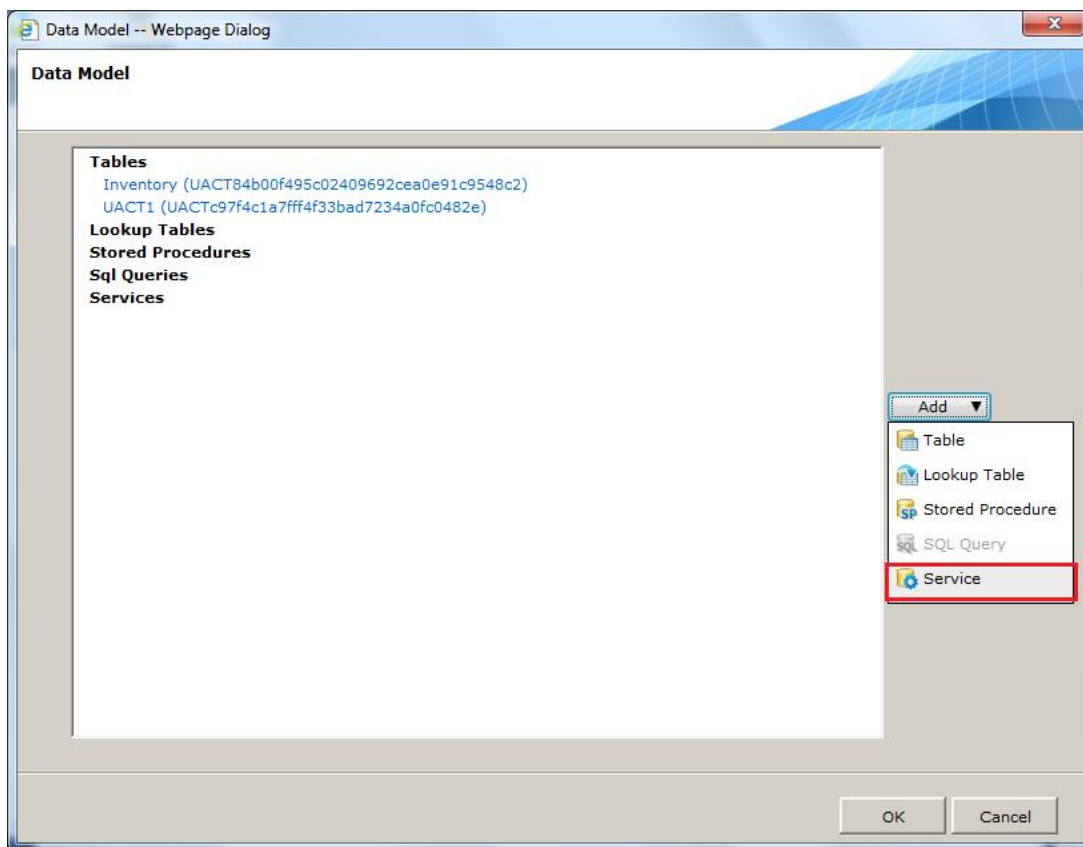
- Web Service Consumer

- WCF Consumer

- External Service Consumer

- Dynamics CRM Service Provider

- REST Service Consumer Provider

- SharePoint Service Provider

- SAP Consumer Provider

You define the service in the same way as if you had added an Integration activity of that type (see this page for more information on defining Integration activities.

The available services of this type appear in the central area below.
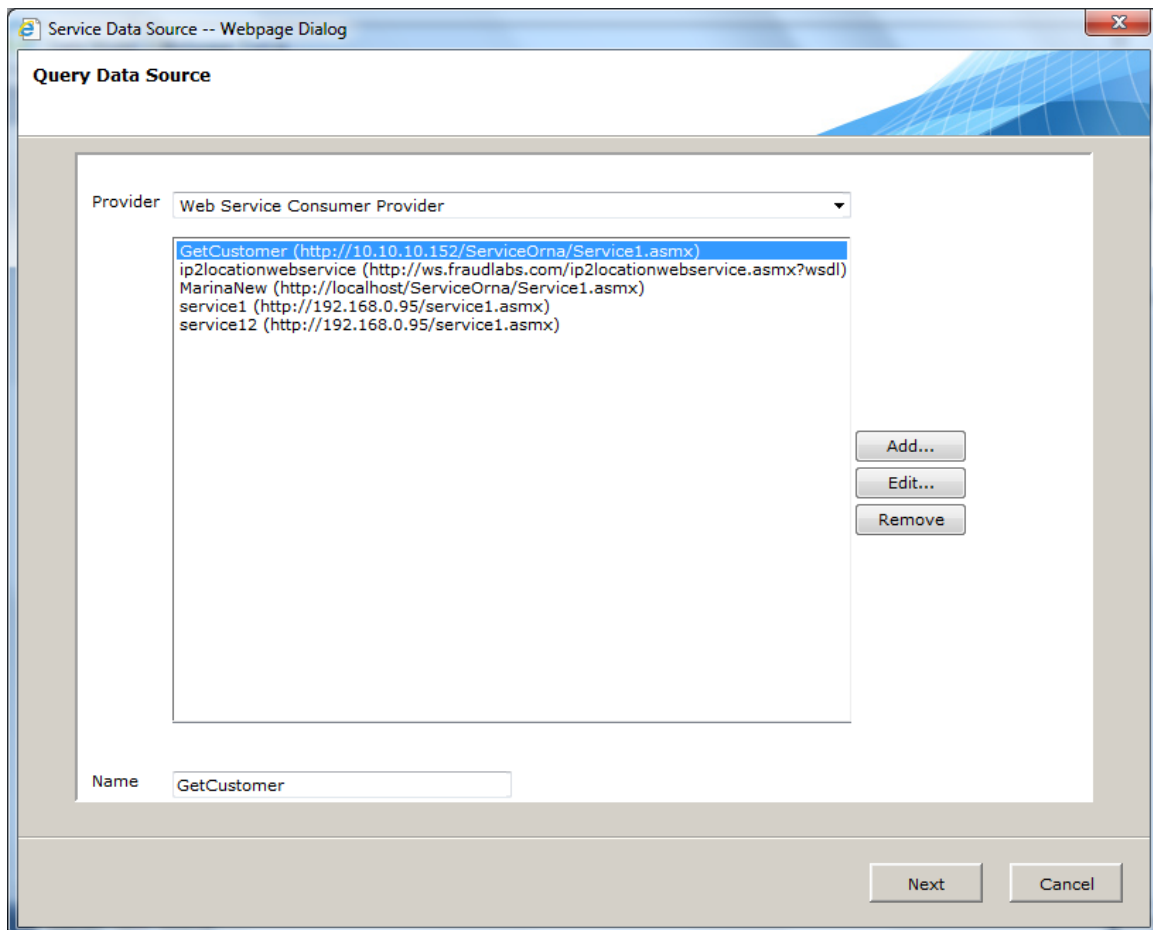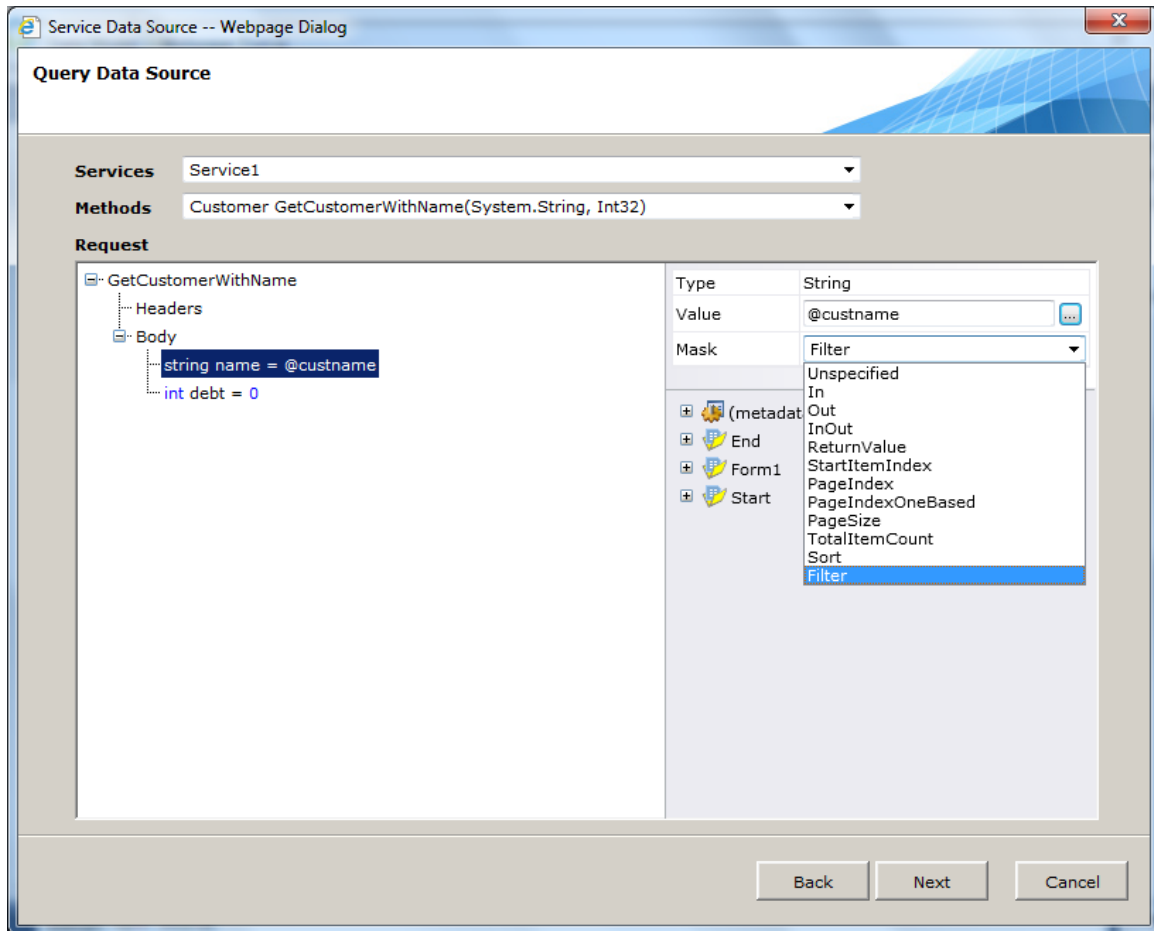

Query Data Source Screen

3. Select one of the available services, or click **Add** to define a new service of this type. You can also **Edit** an existing service or **Remove** it if necessary.

4. Click **Next**. The *Query Data Source* screen appears.

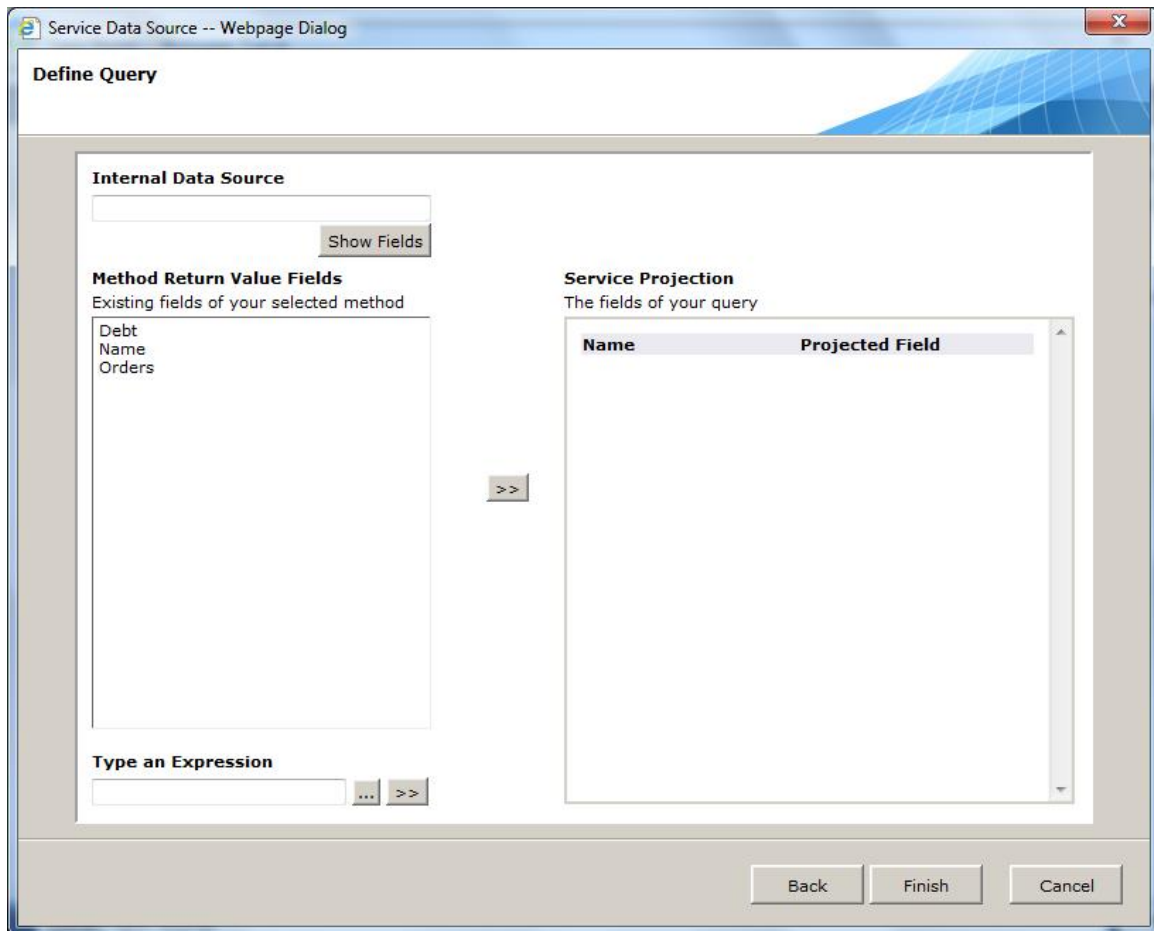
Query Data Source Screen

5. From the **Services** dropdown list, select the service you want to consume.

6. From the **Methods** dropdown list, select the method you want to invoke.

7. Define the connection Properties in the right-hand window (see the appropriate Service Activity User Guide in the Knowledge Centre for more details).

8. In the **Request** area, click each method input parameter and define its value. These can be hard-coded, based on an expression, or they can be form input parameters (in which case they must begin with @, e.g. @custname).

   If the input parameter is a form parameter, then you can define its **Mask**, indicating to the Sequence server what type of parameter it is.

Define Request Parameters

9. Click **Next**. The *Define Query* screen appears.

Define Query Screen

10. From the **Method Return Value Fields**, you can add fields to your query by double-clicking them or by selecting them and clicking ![>>] . They are added to the **Service Projection** area.

11. (Optional) if one of the return values is an object containing a list of fields (for example, an Order), and you want to add these fields to your query, you can enter this object's name in the **Internal Data Source** field, click **Show Fields**, and then its fields are displayed in the **Method Return Value Fields** area. You can now add them to the query.
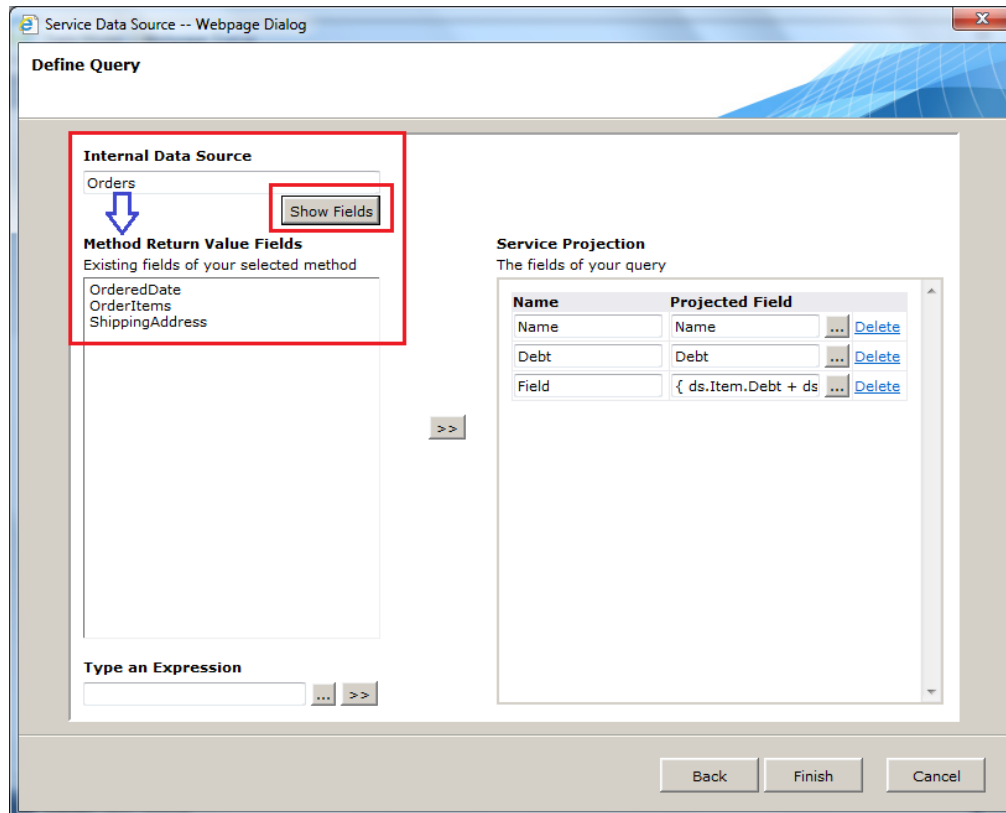
Internal Data Source

12. (Optional) In the **Type an Expression** field, you can create an expression and add it to the query fields.
    You can base the expression on the return values (e.g. a concatenation of two return fields) or on other fields in the workflow.
    To include return values in your expression, use the syntax `ds.Item.<fieldname>`. The expression must be within { } brackets.

    Click ![...] to edit the expression in the Expression editor.

    Click ![>>] to add the expression to your query.
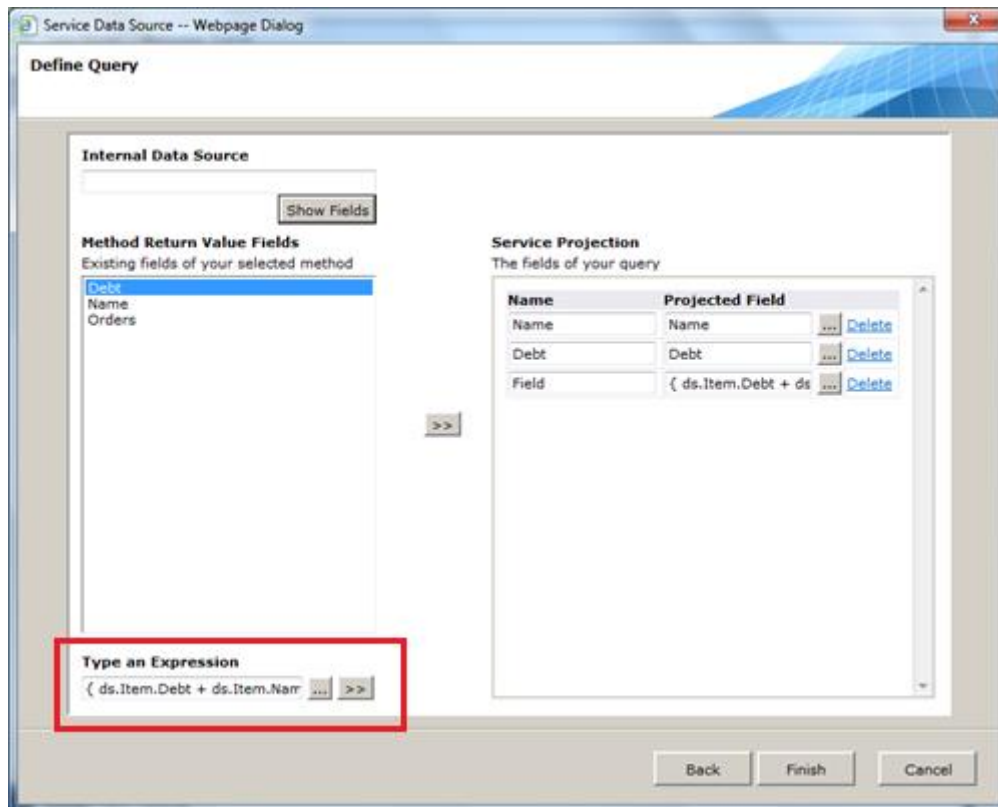
Define Query – Type an Expression

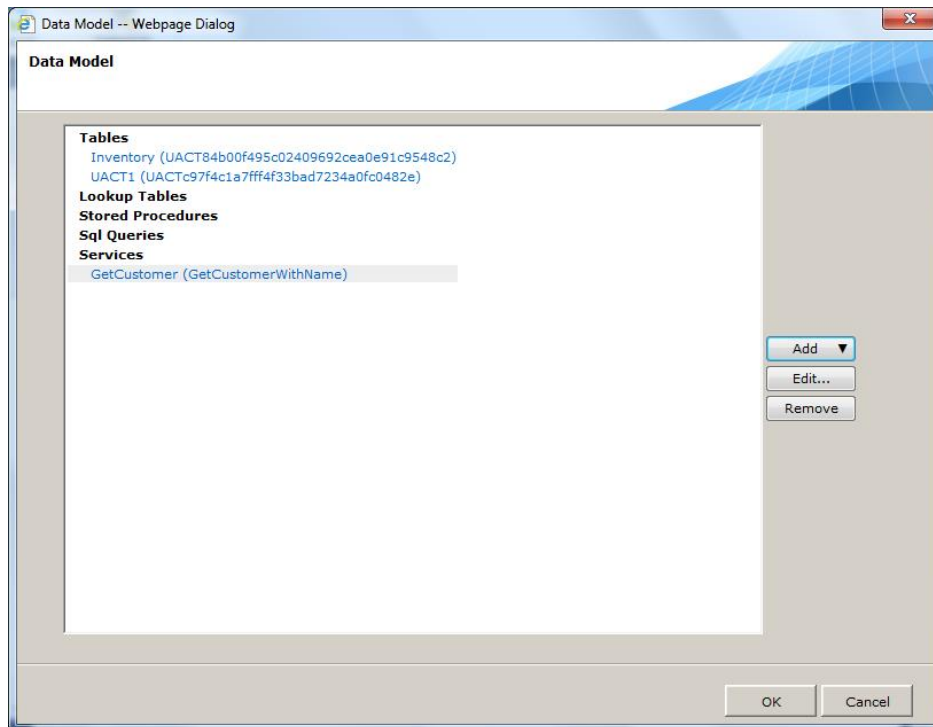13. When you are finished defining the query fields, click **Finish**.

14. The Service query is defined and is added to your Data Model. You can now use it as a Data Source for fields on your form.

Data Model

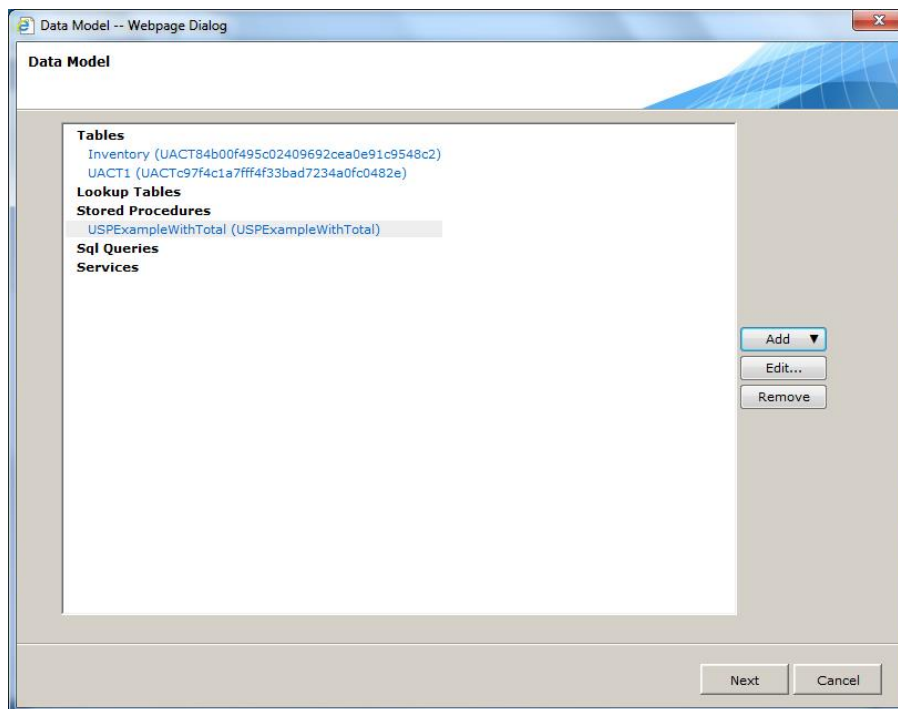# Adding a SP/Service Association for a Table Data Field

You can use a Stored Procedure or Service query as the data source of a field in your form, for example, a combo box. When defining this field in the primary table of your form, you define it as type **List**, and select the Stored Procedure or Service query as its data source:
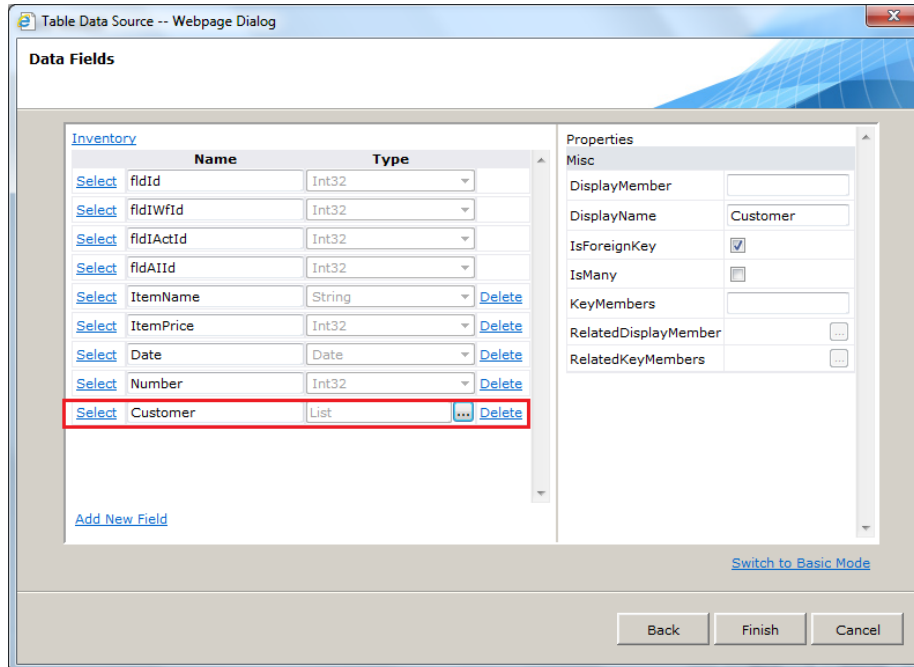
Add Field of Type List

Select Stored Procedure
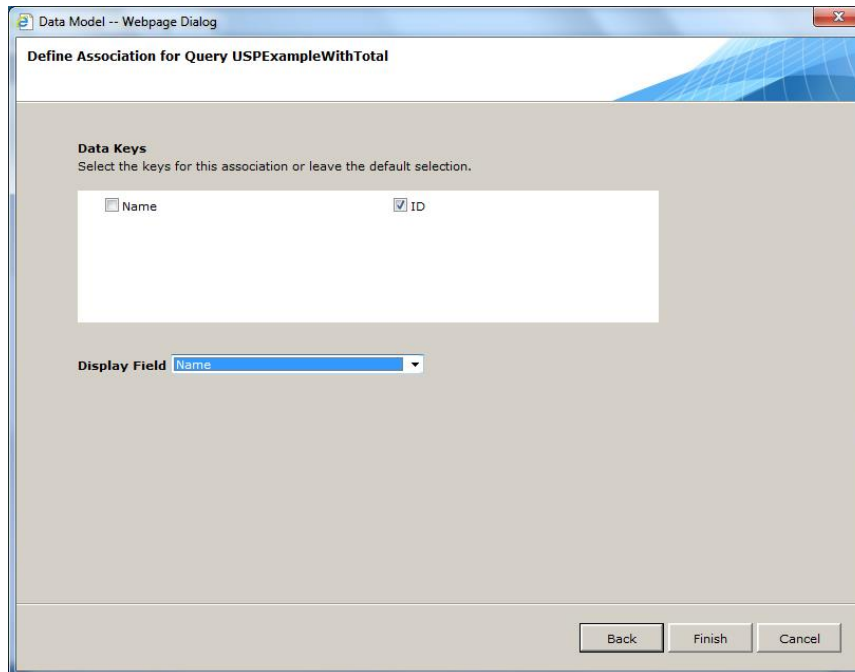
Select Data Association

Service or Stored Procedure as Data Source for List Field

Now, on your form, you select the Stored Procedure or Service as the Data Source for the form field (e.g. a combo box):

Select Data Source

Associations and Database Persistence

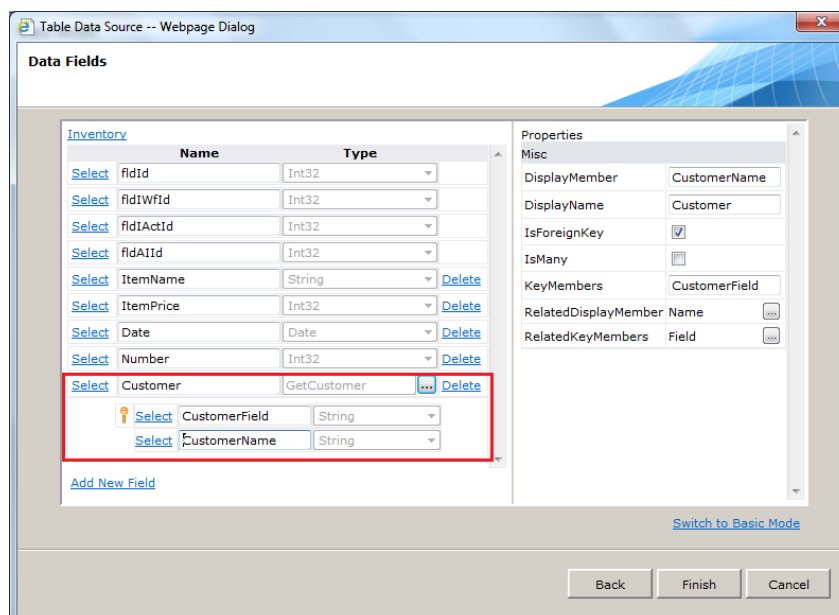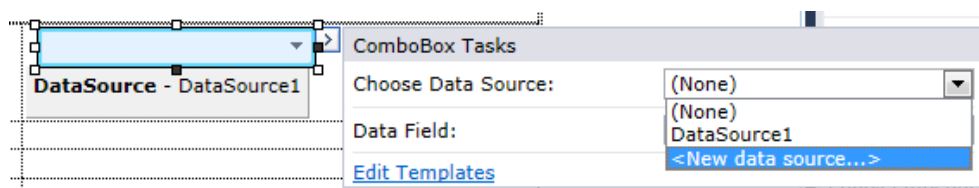One of the Entity Types you can define in your Entity Query is an Association. An Association connects two entities in the data model. You can define Associations from a UACT Table to:

- Another UACT Table
- UTCMB Lookup Table
- Service (Web Service, WCF Service, External Service)
- Stored Procedure

The association between these objects is established in the query itself. No database relation between tables is created. Instead, the key(s) and value field you select when adding the association are added as columns to the primary UACT Table. The associated data source is read-only – meaning that you do not write to that table, you only retrieve values from it.

The basic steps are as follows (see a SP/Service example with figures above):

1. In the primary Table Query's *Data Fields screen,* you add a field of type List.
2. Click ⬚ and select the Lookup Table, Stored Procedure or Service of the association.
3. Select the key(s) and a display value you require in the *Define Association for Query* screen and click **OK**.
4. When you save the Data Model, these fields are added as columns to the primary Table.

Note: You can retrieve values from a UTCMB table for controls in the form view without defining an association between the UACT and the UTCMB in the query or view.

Attachments

Attachments are also a type of Association. When adding a field of type Attachment to a Table query, you are effectively adding a connection to a system table. In this case, the GuID (Value) the Filename (Text) are saved as columns to the primary UACT table. The Attachment itself is saved in the Sequence Database table tblattachments.

Data Persistence

When you click **Finish** in the Data Model Wizard, Sequence builds the UACT tables in the Sequence Database and saves them. (When you edit the data model, clicking **OK** in the main screen saves your changes to the Database.)

An exception to this is that a Lookup Table is built and saved when you complete the steps to define it within the Data Model Wizard (before you click **OK/Finish** to exit the wizard).

Multiple Forms on the Same UACT

When you have two forms that point to the same UACT (in the same workflow), Sequence combines the fields of each Form's query definition into the same UACT table.

External Tables

When adding a Table query to the Data Model, you have an option to add an external table. Please note that Sequence does not alter the schema of external tables.