

# **Aras Innovator 11**

## **Microsoft Reporting Services Guide**

For use with Microsoft SQL Server 2008 R2

*Document #: 11.0.02015040601*

*Last Modified: 1/10/2018*



# Copyright Information

Copyright © 2018 Aras Corporation. All Rights Reserved.

Aras Corporation  
300 Brickstone Square  
Suite 700  
Andover, MA 01810

**Phone:** 978-691-8900

**Fax:** 978-794-9826

**E-mail:** [Support@aras.com](mailto:Support@aras.com)

**Website:** <http://www.aras.com>

## Notice of Rights

Copyright © 2018 by Aras Corporation. This material may be distributed only subject to the terms and conditions set forth in the Open Publication License, V1.0 or later (the latest version is presently available at <http://www.opencontent.org/openpub/>).

Distribution of substantively modified versions of this document is prohibited without the explicit permission of the copyright holder.

Distribution of the work or derivative of the work in any standard (paper) book form for commercial purposes is prohibited unless prior permission is obtained from the copyright holder.

Aras Innovator, Aras, and the Aras Corp "A" logo are registered trademarks of Aras Corporation in the United States and other countries.

All other trademarks referenced herein are the property of their respective owners.

## Notice of Liability

The information contained in this document is distributed on an "As Is" basis, without warranty of any kind, express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose or a warranty of non-infringement. Aras shall have no liability to any person or entity with respect to any loss or damage caused or alleged to be caused directly or indirectly by the information contained in this document or by the software or hardware products described herein.

# Table of Contents

<b>Send Us Your Comments .....</b>	<b>5</b>
<b>Document Conventions .....</b>	<b>6</b>
<b>1 Introduction .....</b>	<b>7</b>
<b>2 Installing Reporting Services .....</b>	<b>8</b>
2.1 SQL Server 2008 R2 Installation Dialog boxes.....	8
2.1.1 <i>Default Instance</i> .....	9
2.1.2 <i>Service account Setup</i> .....	9
2.1.3 <i>Analysis Services Configuration</i> .....	10
2.1.4 <i>Authentication Mode</i> .....	11
2.1.5 <i>Reporting Services Options</i> .....	11
2.1.6 <i>Default Selections</i> .....	11
<b>3 Configuring Reporting Services .....</b>	<b>12</b>
3.1 Add Reports Folder .....	12
3.2 Add Shared Data Source .....	14
3.3 Add Reporting User and Role .....	16
3.3.1 <i>Adding Local User Account for Reporting</i> .....	16
3.3.2 <i>Adding the Reporting Role</i> .....	17
<b>4 Using Visual Studio for Report Design .....</b>	<b>21</b>
4.1 Creating a New Report Project .....	21
4.2 Configuring Project Properties .....	22
4.3 Add New Shared Data Source .....	22
4.3.1 <i>Connection Properties</i> .....	22
4.3.2 <i>Deploy the Shared Data Source</i> .....	24
<b>5 Creating your First Report .....</b>	<b>25</b>
5.1 Start a New Report using the Wizard.....	25
5.2 Select the Data Source .....	26
5.3 Design the Query .....	27
5.4 Select the Report Type .....	28
5.5 Design the Table .....	29
5.6 Choose the Table Style.....	30
5.7 Name the Report.....	31
5.8 Wizard Report Results .....	32
5.9 Visual Studio Layout .....	32
5.10 Deploying the Report .....	33
5.11 Confirm Deployment .....	33
5.12 Running the Report from within Aras Innovator .....	33
5.12.1 <i>Adding Aras Innovator Report Item</i> .....	34
5.12.2 <i>Passing Named Parameters to the ReportServer</i> .....	34

<b>6</b>	<b>Report Server query_string Parameters .....</b>	<b>36</b>
6.1	Named Parameters .....	36
6.2	Format Parameter .....	36
6.3	Report Toolbar .....	36
6.4	Parameters Form .....	36
6.5	Zoom .....	36
6.6	Reports Folder.....	37
6.7	Report Name .....	37
<b>7</b>	<b>Report Manager.....</b>	<b>38</b>
7.1	Opening the Report Manager page .....	38
7.2	Export the RDL.....	39
7.3	Import the RDL.....	40
7.4	Select the Shared Data Source.....	42
<b>8</b>	<b>Graphical Query Builder.....</b>	<b>44</b>
<b>9</b>	<b>Date Related SQL Queries .....</b>	<b>46</b>
<b>10</b>	<b>Cookbook.....</b>	<b>47</b>
10.1	User Input Reports .....	47
10.2	Report Chooser.....	49
10.3	Date Selector.....	50

## Send Us Your Comments

---

Aras Corporation welcomes your comments and suggestions on the quality and usefulness of this document. Your input is an important part of the information used for future revisions.

- Did you find any errors?
- Is the information clearly presented?
- Do you need more information? If so, where and what level of detail?
- Are the examples correct? Do you need more examples?
- What features did you like most?

If you find any errors or have any other suggestions for improvement, indicate the document title, and the chapter, section, and page number (if available).

You can send comments to us in the following ways:

**Email:**

[Support@aras.com](mailto:Support@aras.com)

Subject: Aras Innovator Documentation

Or,

**Postal service:**

Aras Corporation  
300 Brickstone Square  
Suite 700  
Andover, MA 01810  
Attention: Aras Innovator Documentation

Or,

**FAX:**

978-794-9826  
Attn: Aras Innovator Documentation

If you would like a reply, provide your name, email address, address, and telephone number.

If you have usage issues with the software, visit <http://www.aras.com/support/>

# Document Conventions

The following table highlights the document conventions used in the document:

Table 1: Document Conventions

Convention	Description
<b>Bold</b>	Used for the names of menu items, dialog boxes, dialog box elements, and commands. Example: Click <b>OK</b> .
Code	Code examples appear in <code>courier</code> font. It may represent text you type or data you read.
<code>Yellow highlight</code>	Code highlighted in yellow is used to draw attention to the code that is being indicated in the content.
<code>Yellow highlight with red text</code>	Red text highlighted in yellow indicates the code parameter that needs to be changed or replaced.
<i>Italics</i>	Reference to other documents.
<b>Note:</b>	Notes contain additional useful information.
<b>Warning</b>	Warnings contain important information. Pay special attention to information highlighted this way.
Successive menu choices	Successive menu choices may appear with a greater than sign (-->) between the items that you will select consecutively. Example: Navigate to <b>File</b> --> <b>Save</b> --> <b>OK</b> .

# 1 Introduction

---

Aras Innovator's Report ItemType includes support for Microsoft's 'Reporting Services' in addition to supporting the existing XSLT based reports.

Reporting Services is an integral component of SQL Server 2008 R2. Any customer with a SQL Server 2008 R2 license can install Reporting Services. (For more information, refer to section 2 [Installing Reporting Services](#)).

---

**Note:** Only people with advanced Aras Innovator and SQL training should use this release.

---

The primary benefits to switching from stylesheet driven reports to Report Server are:

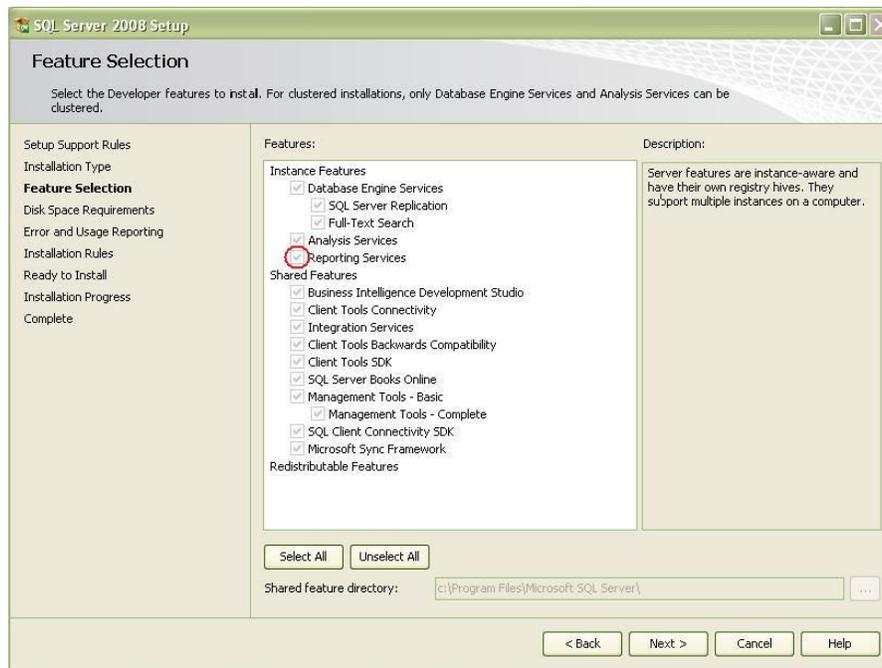
- Query building is in SQL, and is graphical (same as in Enterprise Manager).
- Report definitions are transportable. You can develop them on your laptop, and then deploy them to a production server.
- Drag-and-drop Report layout with more powerful formatting tools.
- Resulting reports are paginated.
- Users can easily print, PDF, or export the report output to Excel.
- Users can produce Excel-like charts and graphs.

Planned enhancements are a tighter integration of the authentication / permissions model, and finding an alternative to Visual Studio for end-use report layout.

To learn more about Microsoft Reporting Services visit: [Microsoft SQL Server: Reporting](#)

## 2 Installing Reporting Services

Reporting Services is a component of Microsoft SQL server 2008 R2. Install it by selecting the **Reporting Services** option during the SQL server installation.



In addition to selecting the Reporting Services option, you can select **Analysis Services** which provides graphing and charting functionality.

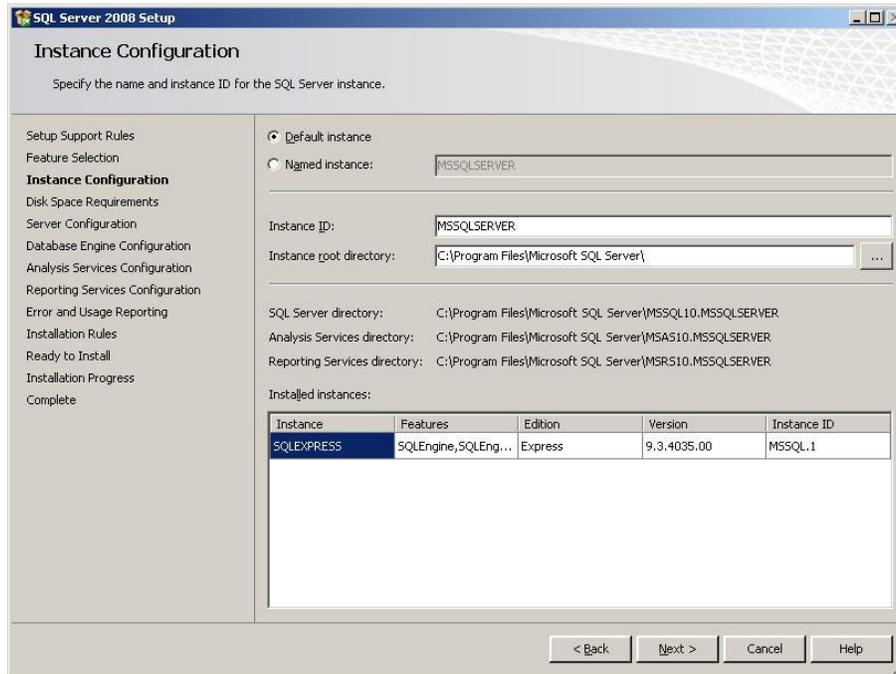
Selecting the **Reporting Services** option also installs components of Visual Studio 2008 for report design and deployment

### 2.1 SQL Server 2008 R2 Installation Dialog boxes

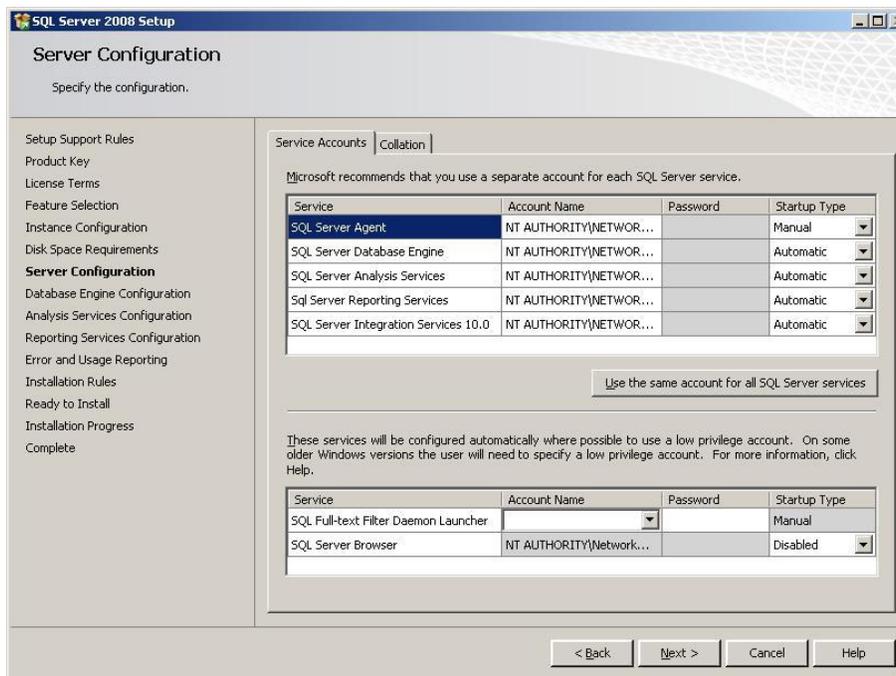
The following sections contain screenshots of the dialog boxes to be used when installing SQL server 2008 R2.

**Note:** If you view dialog boxes not listed here, use the default selections.

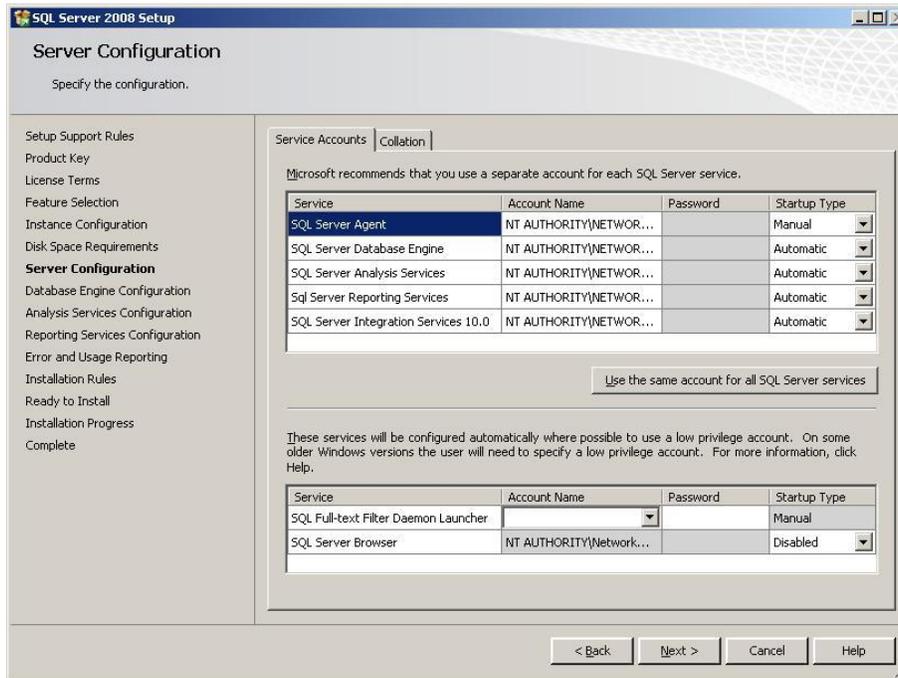
## 2.1.1 Default Instance



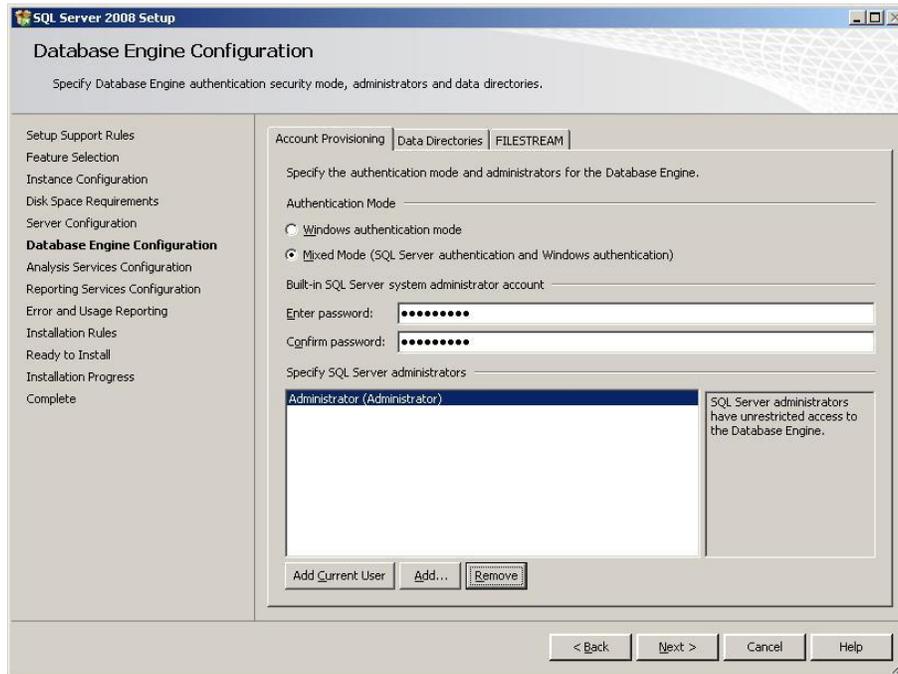
## 2.1.2 Service account Setup



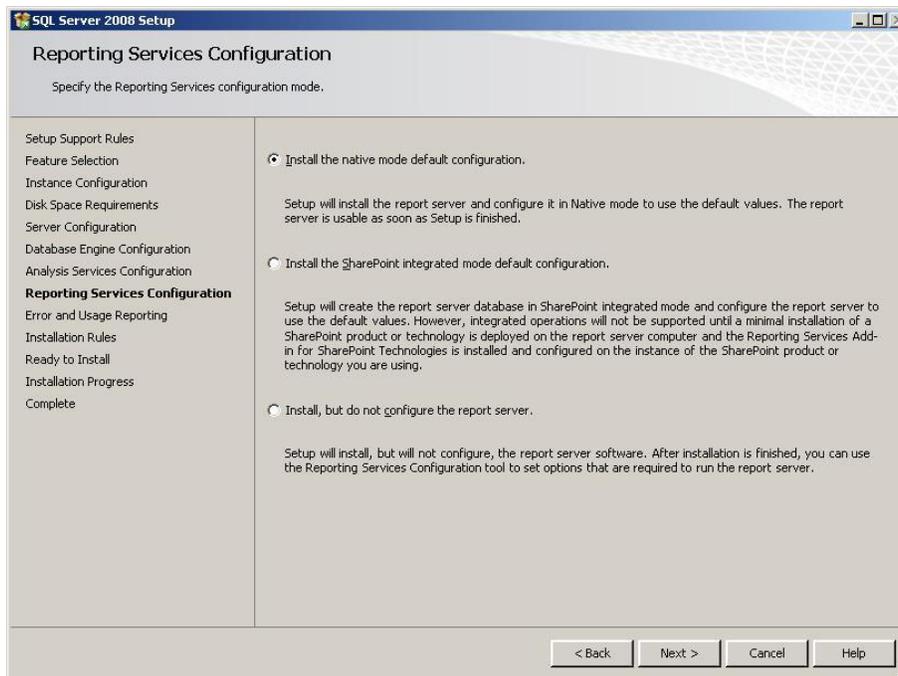
## 2.1.3 Analysis Services Configuration



## 2.1.4 Authentication Mode



## 2.1.5 Reporting Services Options



## 2.1.6 Default Selections

The default selections can be used from this point forward.

## 3 Configuring Reporting Services

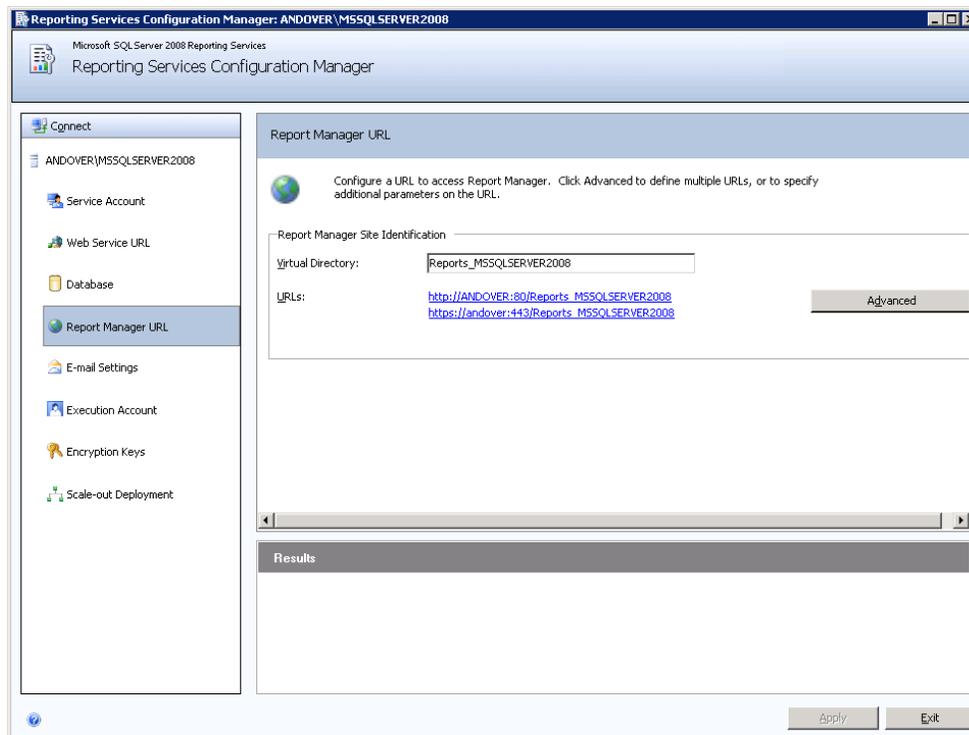
The Reporting Services use Folders to organize Reports. The Aras Innovator integration with Reporting Services use the Innovator Reports folder as the default.

This section describes the procedure for configuring the Reporting Services using the Report Manager by adding the Innovator Reports Folder and a Shared Data Source, which the Reports use to connect to the database.

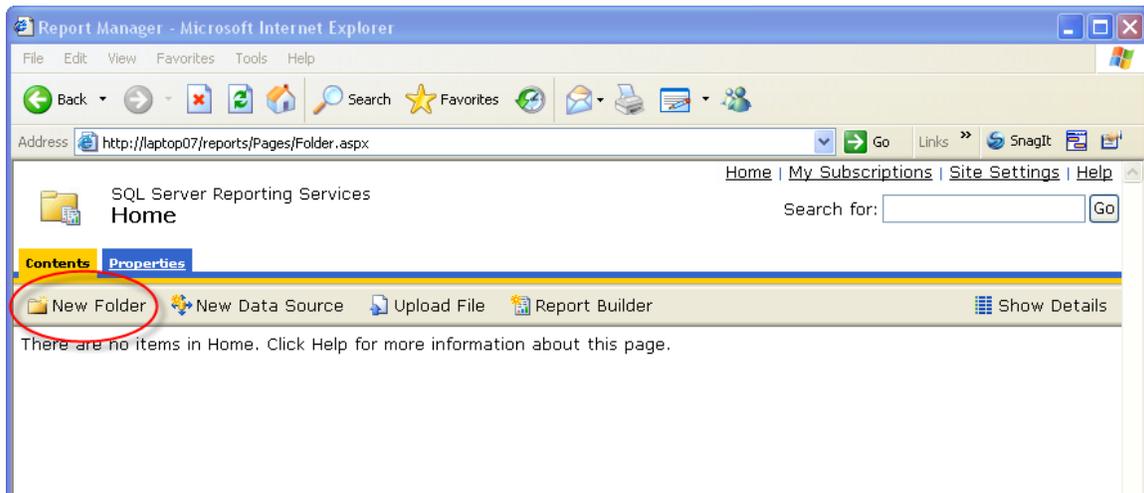
### 3.1 Add Reports Folder

The Reporting Services ReportServer comes with a Report Manager page used to configure the Reports, Folders, Data Sources, and so on. This page is integrated into the Aras Innovator client using an Innovator Report that opens the Report Manager page. Use the following procedure:

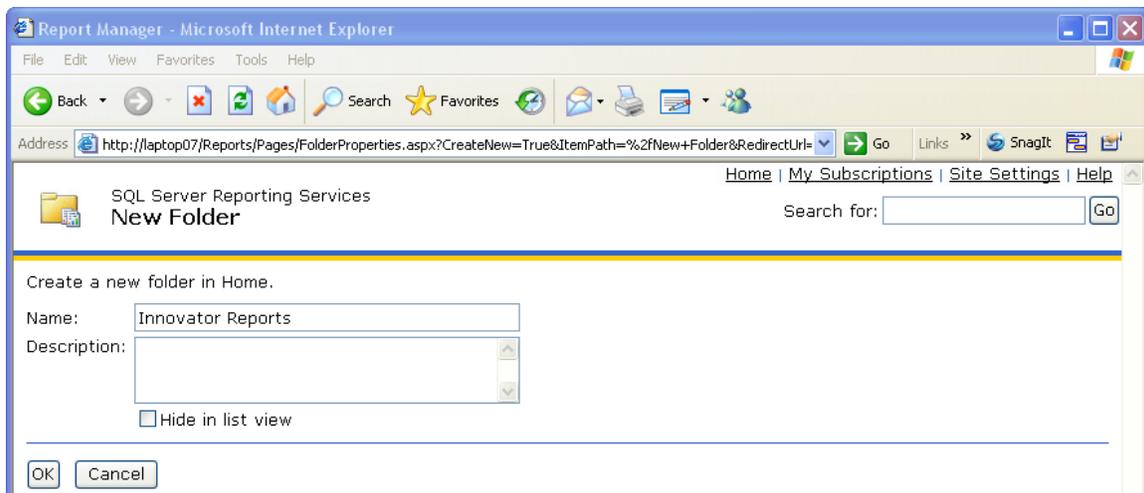
1. Click <http://localhost:8080/Reports> (on a default install).
2. Open the **Reporting Services Configuration Manager** to verify the URL if you are not using the default installation.



The **Report Manager** page opens in a new window as shown:



3. Click **New Folder**. The New Folder dialog appears.
4. Enter **Innovator Reports** in the Name field and click **OK**.



**Note:** If you create a folder named something other than Innovator Reports, you need to change the Report Server Folder variable in both the database and the TOC Administration. The default value is Innovator Reports but you can customize it for each database. For the purposes of these instructions, we assume you are using the default value.

## 3.2 Add Shared Data Source

Once you add the 'Innovator Reports' Folder, navigate into it by clicking on the link. Now, you add a Shared Data Source for the Reports to use to connect to the database.

1. Click **+** then **Data Source** inside the Innovator Reports folder.

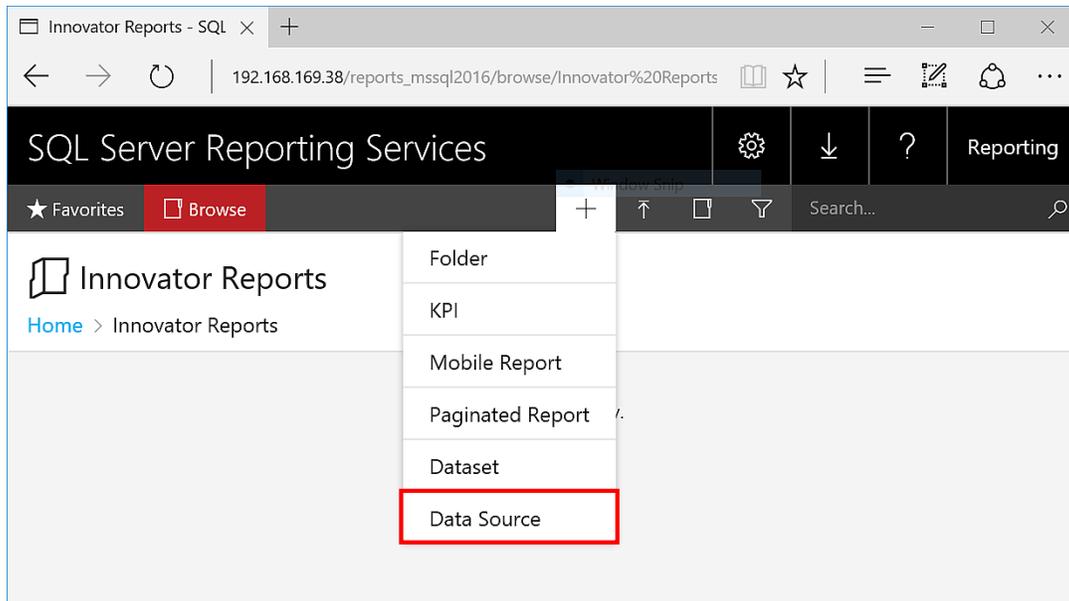


Figure 1.

The New Data Source dialog appears.

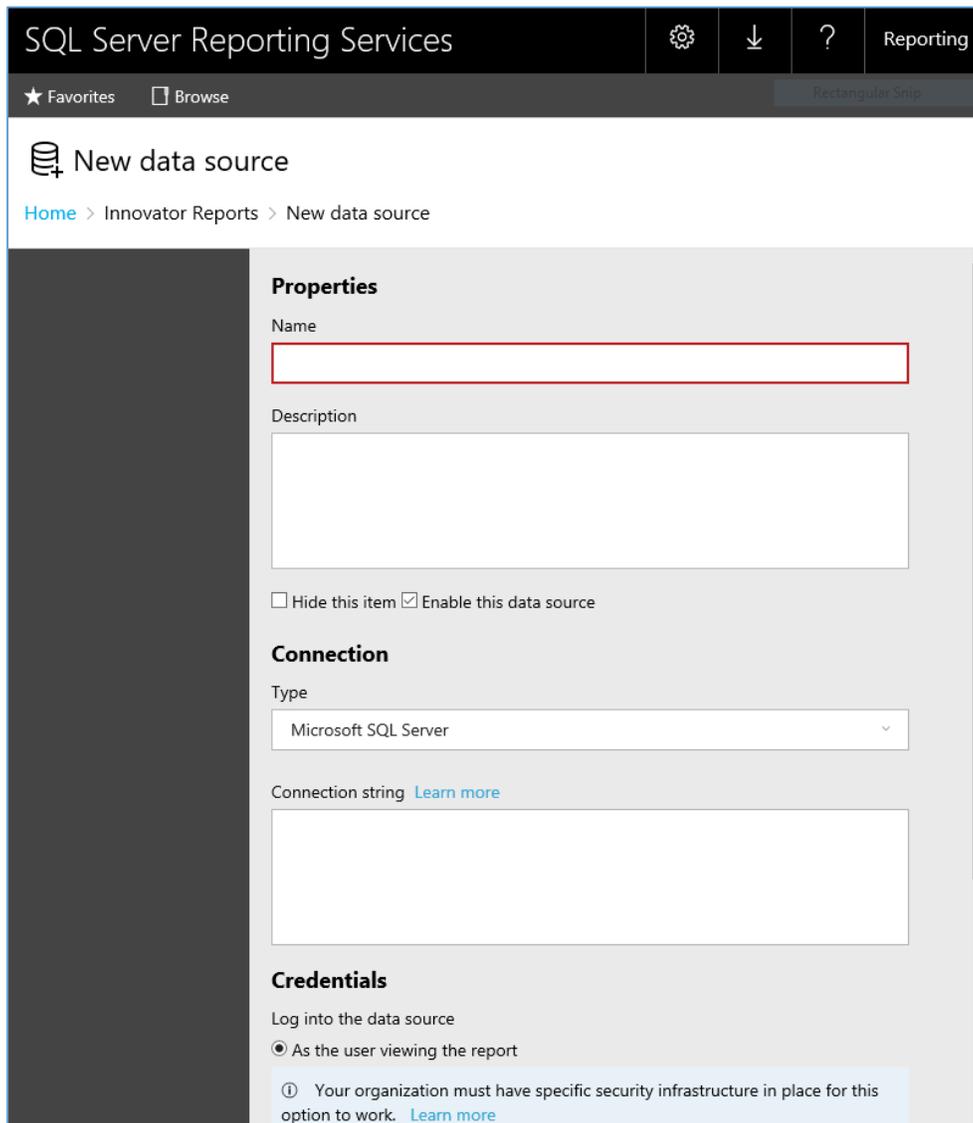


Figure 2.

2. Enter **innovator\_regular** for the Data Source Name.

**Note:** By using this same name for both the development and production servers, exporting/importing Reports becomes simpler because there is no need to reassign the Data Source for the Reports you import.

3. Enter the following for the 'Connection String' replacing the values for the two parameters with the actual server name where SQL Server is installed as well as the actual database name.  

```
data source=<SQLServerName>;initial catalog=<InnovatorDatabase>
```

e.g.  

```
data source=MyServer\MSSQLSERVER2016;initial catalog=InnovatorSolutions
```
4. Select the **Using the following credential** choice for the **Connect Using** Field and enter the **DB Client Login** credentials for your database.
5. Click **Create** to deploy the shared Data Source.

## 3.3 Add Reporting User and Role

The ReportServer.asmx Web Service is the Report Server entry point for the Microsoft Reporting Services. Use the same Web Service to request reports and administer the Report Server. The Web Service is configured to use Windows Authentication by default. You can't simply open security for anonymous Web users because that would open the Report Manager as well.

This security model requires the user be authenticated when they request Reports. A dialog appears requesting the user's login credentials the first time they request a Report. The Login Credentials dialog appears each time the user opens the browser. Refer to section 3.3.1 for information about adding a local user account.

The initial release of the Aras Innovator Reporting Services uses one shared User Account for all Report requests. The Aras Innovator Client calls the Aras Innovator Reporting Services Gateway to request Reports. The Gateway submits the actual Report request using this shared User Account and propagates the results back to the client. The Report renders without the authentication dialog appearing.

If the user attempts to view the Report directly outside Aras Innovator they get the authentication dialog as normal. Users can only view the reports using Aras Innovator unless the IT department shares the credentials.

The local User Account on the server by default is named Reporting. The default password is 'reporting' and must be mapped as a Role in the Report Server.

### 3.3.1 Adding Local User Account for Reporting

The administrator for the server where Microsoft Reporting Services is installed must add a new Windows User Account named **Reporting**. Once the user account is created, configure Aras Innovator by setting the user name and password in the InnovatorServerConfig.xml configuration file:

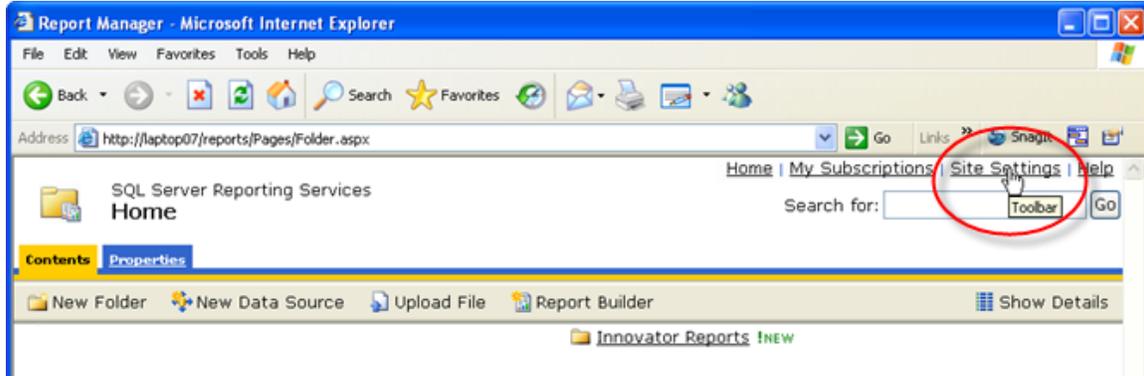
```
<ReportingServices>
  <ReportServer>http://localhost/ReportServer/</ReportServer>
  <User>Reporting</User>
  <Password>reporting</Password>
  <Domain>Domain for the above User</Domain>
</ReportingServices>
```

Optional node, <Domain>, should contain the domain name you want to use to connect to Reporting services.

### 3.3.2 Adding the Reporting Role

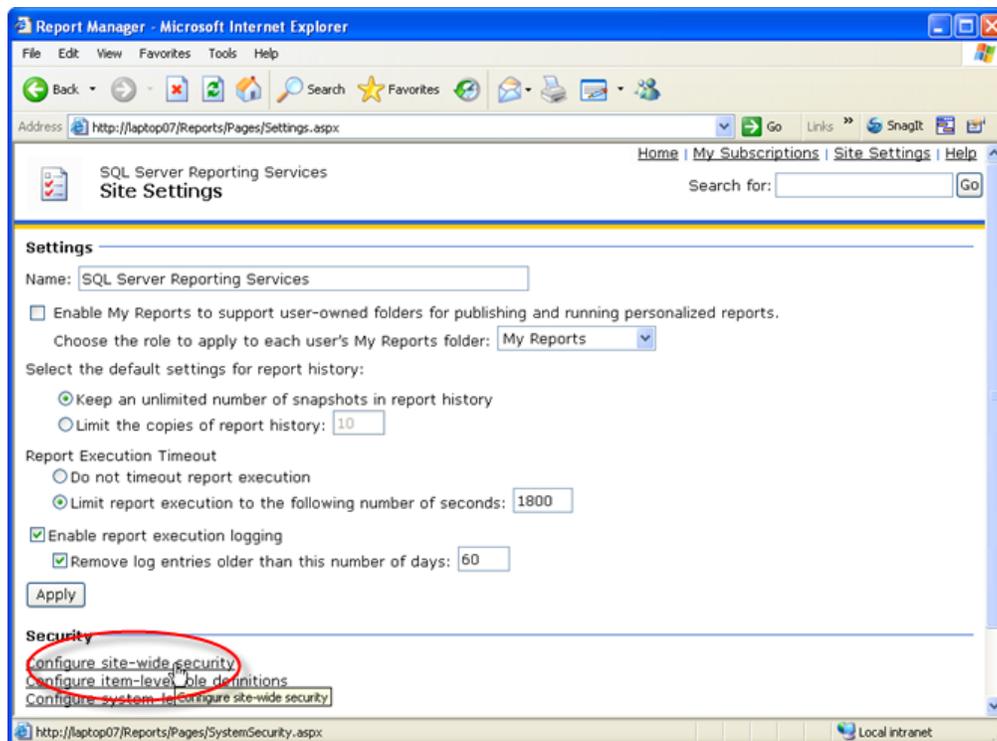
Use the following procedure to map the reporting user account as a role in Reporting Services. This enables account browser privileges.

1. Click the **Site Settings** link in the upper right hand corner of the Report Manager page.

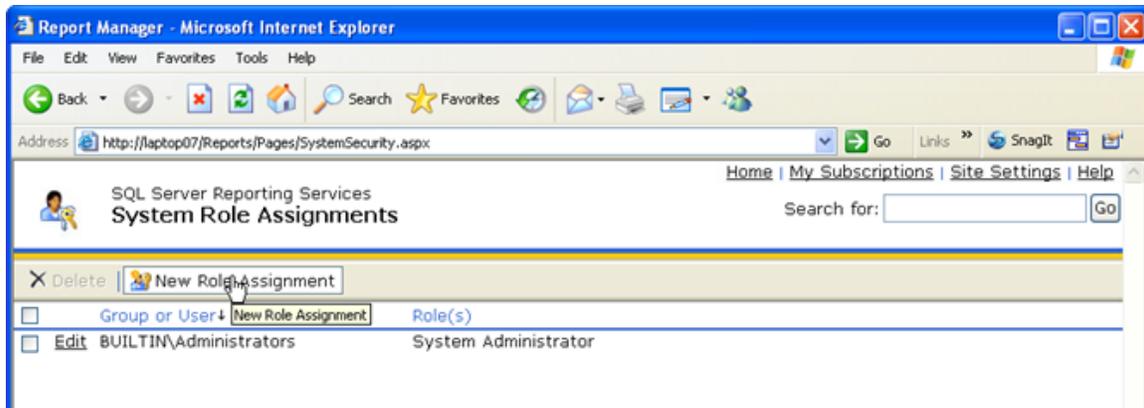


The Site Settings dialog appears.

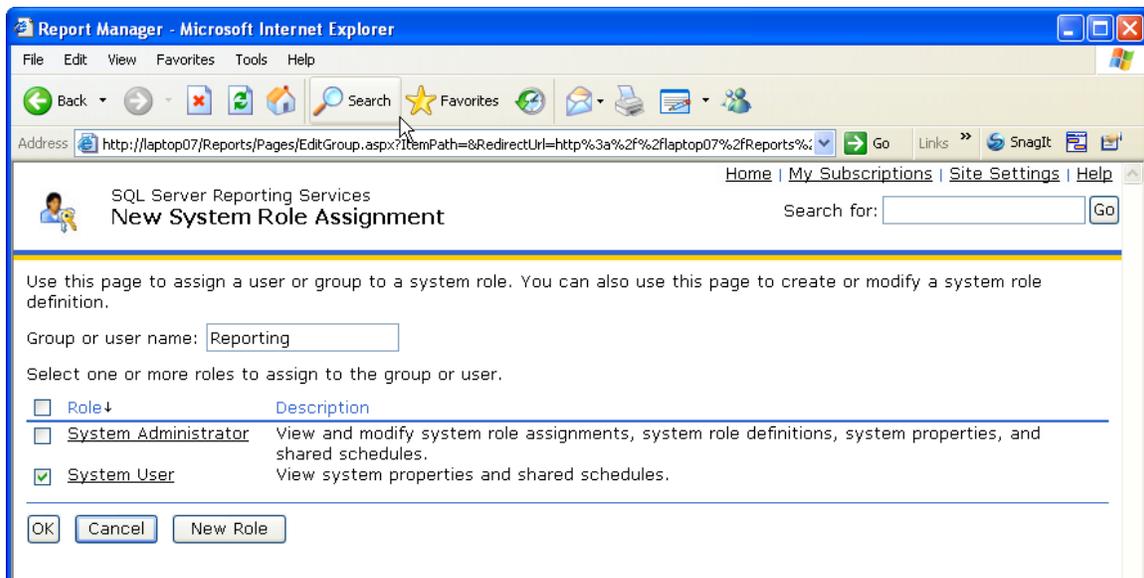
2. Click the **Configure site-wide security** link.



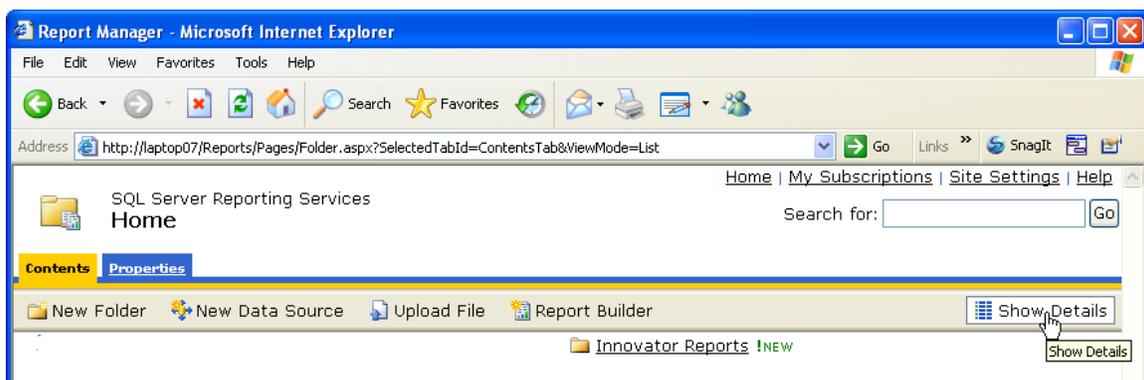
3. Click **New Role Assignments** to map the Reporting User Account as a Reporting Services Role.



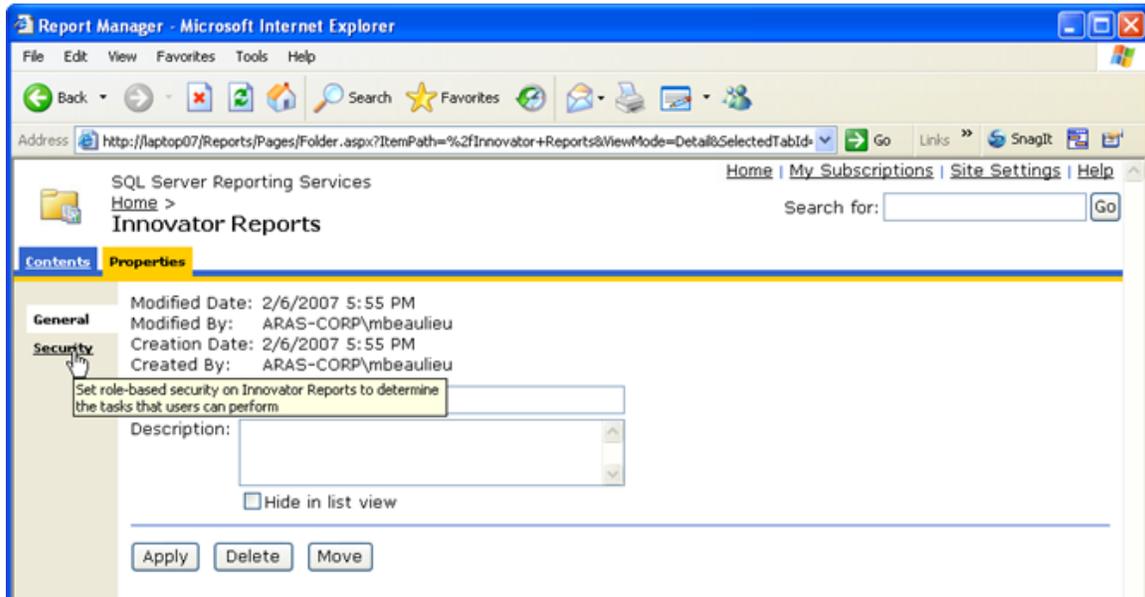
4. Enter the User Account name **Reporting** in the Group or user name field, select the **System User** checkbox, and click **OK** to create the new Role.



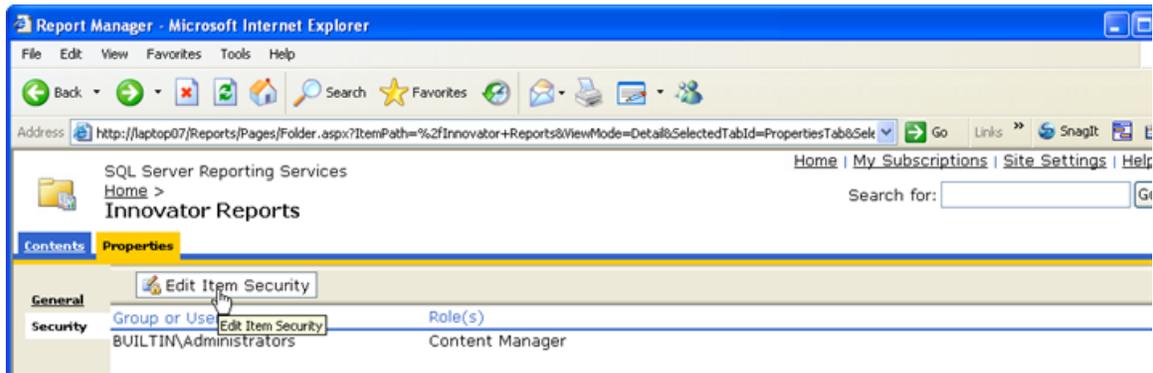
5. Add the new Reporting Role to the Innovator Reports folder's security. Click the **Home** link in the upper right hand corner on the page, click **Show Details** and select the Edit icon for the Innovator folder.



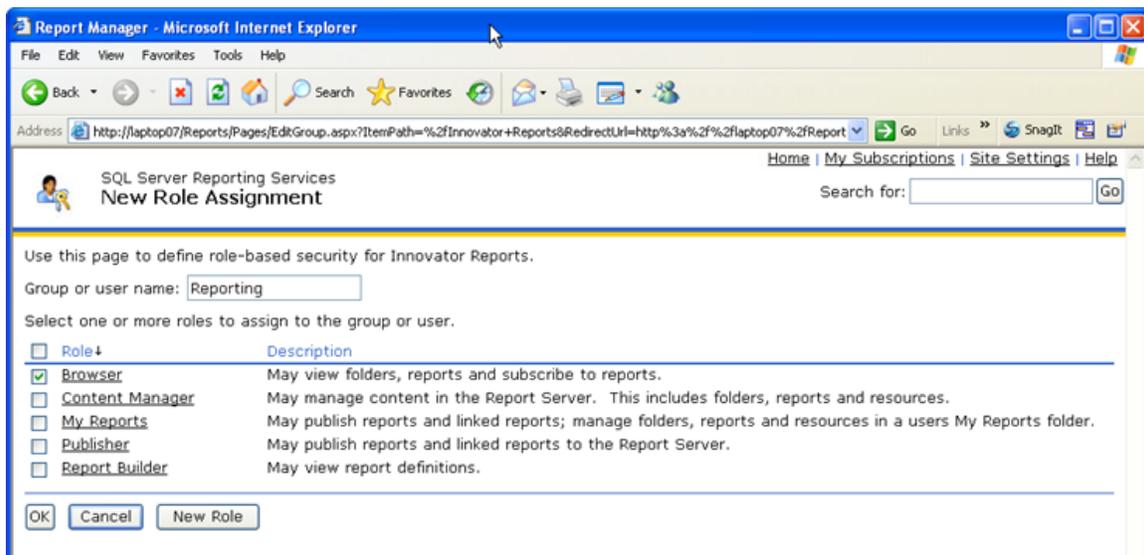
6. Click the **Security** link on the left hand side of the page to open the Security page for the Innovator Reports folder.



7. Click **Edit Item Security**.



8. Enter the Reporting Role, check the **Browser** checkbox, and click **OK** to create a new Role Assignment for the Innovator Reports folder.



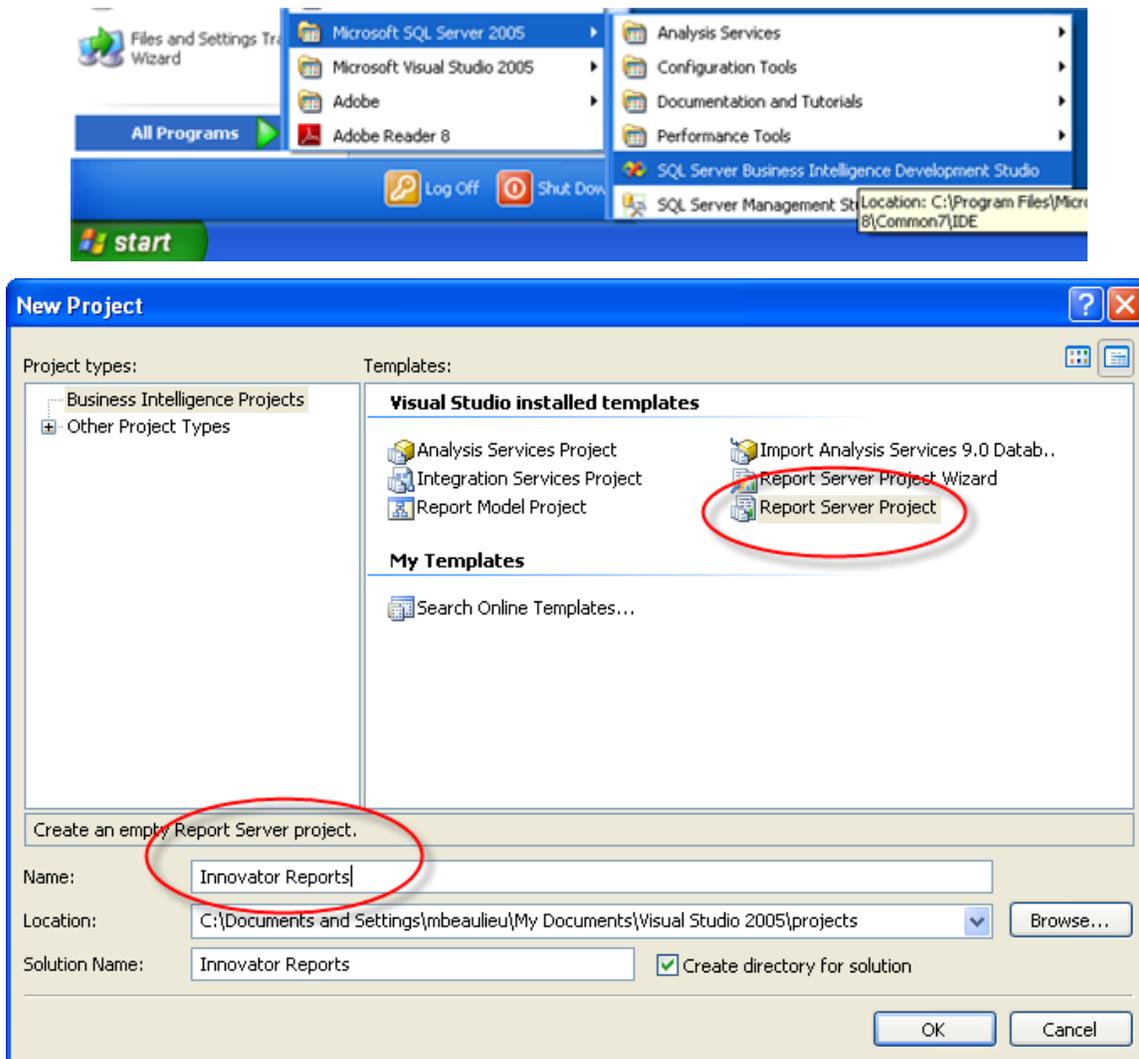
## 4 Using Visual Studio for Report Design

Once you install Reporting Services, you need to configure Visual Studio to create a Project to hold the Reports. You also need to configure a Shared Data Source, which is the database connection information for the Reports.

**Note:** It is required that you follow the exact naming conventions shown here to ensure that the Aras Innovator integration with the Reporting Services works correctly.

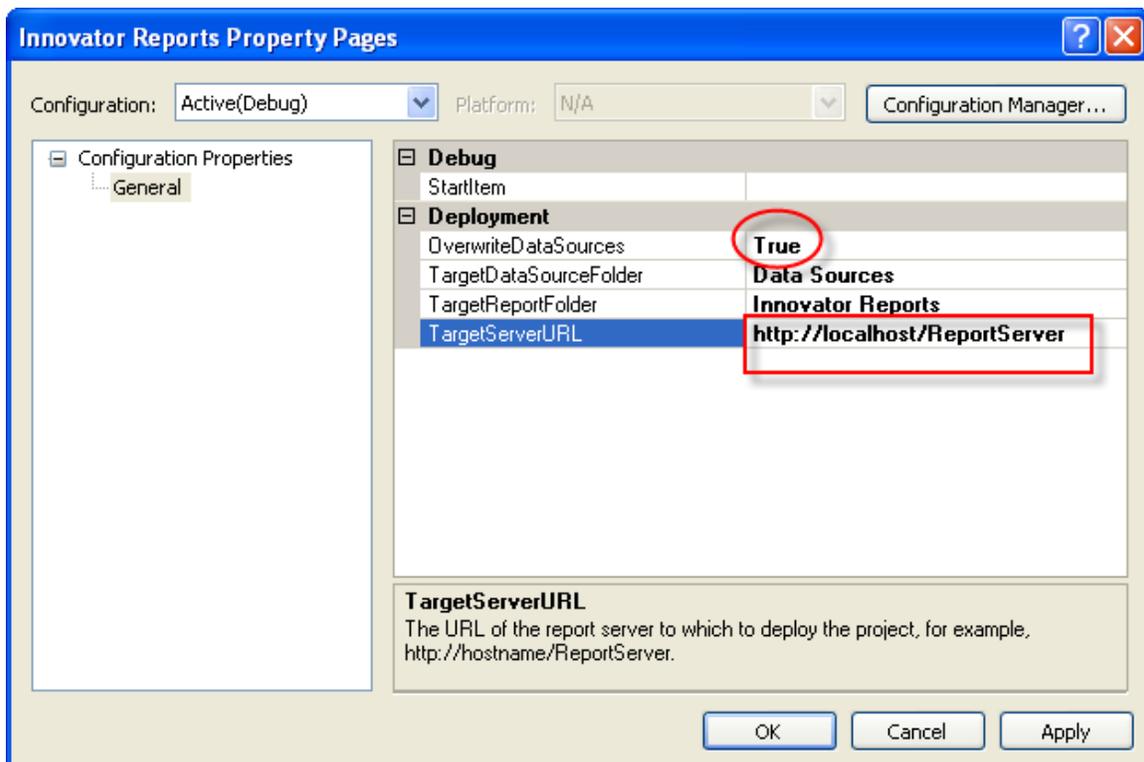
### 4.1 Creating a New Report Project

Select **Microsoft SQL Server 2005** → **Microsoft SQL Server Business Intelligence Development Studio** and create a new project named Innovator Reports. This becomes the Reporting Services Folder to hold the Reports for Aras Innovator.



## 4.2 Configuring Project Properties

1. Open the Solutions Explorer panel from the menu **View -->Solutions Explorer**, if it is not already opened.
2. Right-click the **Innovator Reports** folder and select **Properties**.
3. On the Properties dialog, set the **TargetServerURL** field to the URL of the Report Server (For example, `http://localhost:8080/ReportServer` )
4. Enter the actual server host name in the **TargetServerURL** field.
5. Set the **OverwriteDataSources** flag to **True**.

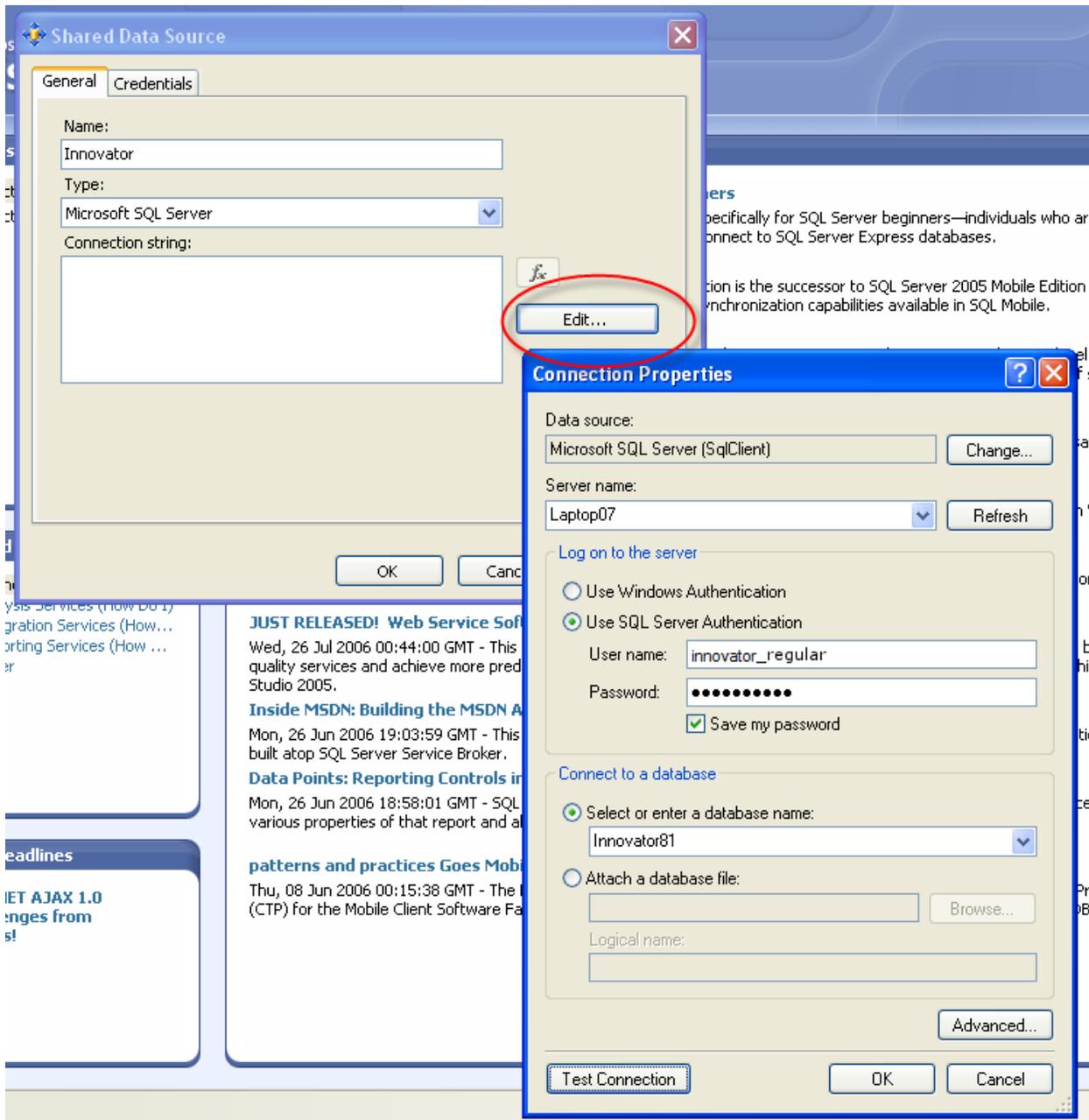


## 4.3 Add New Shared Data Source

In the same Solutions Explorer panel, right-click the **Shared Data Sources** folder and select **Add New Data Source**. Click **Edit** to configure the new datasource.

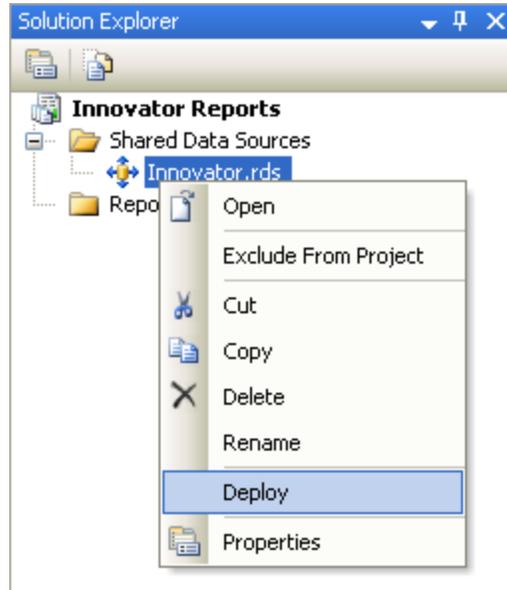
### 4.3.1 Connection Properties

1. Select or enter the **Server name** for the machine where SQL Server is installed.
2. Select **Use a specific user name and password**, enter the login credentials for the database, and check **Save My password**.
3. Select or enter the Database name.



### 4.3.2 Deploy the Shared Data Source

By default, the name of the Shared Data Source is the name of the Database you selected in the previous section. You can rename this if you want. Finally, you need to deploy this new Shared Data Source.



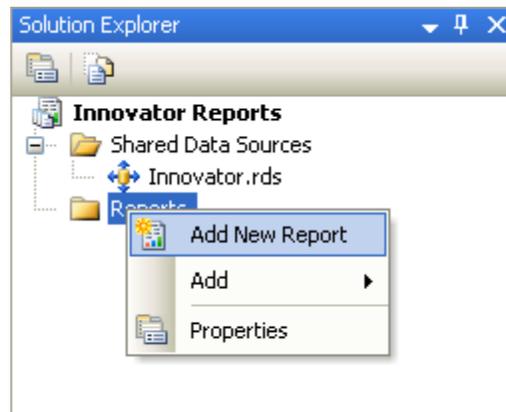
## 5 Creating your First Report

---

The following procedure describes how to use the Report Wizard to create a new Report. For this Report, we create a simple User Directory Report showing the user's First Name, Last Name, Email, Phone Number, and Company Name.

### 5.1 Start a New Report using the Wizard

Right-click the **Reports** folder in the Solution Explorer panel, and select **Add New Report**.



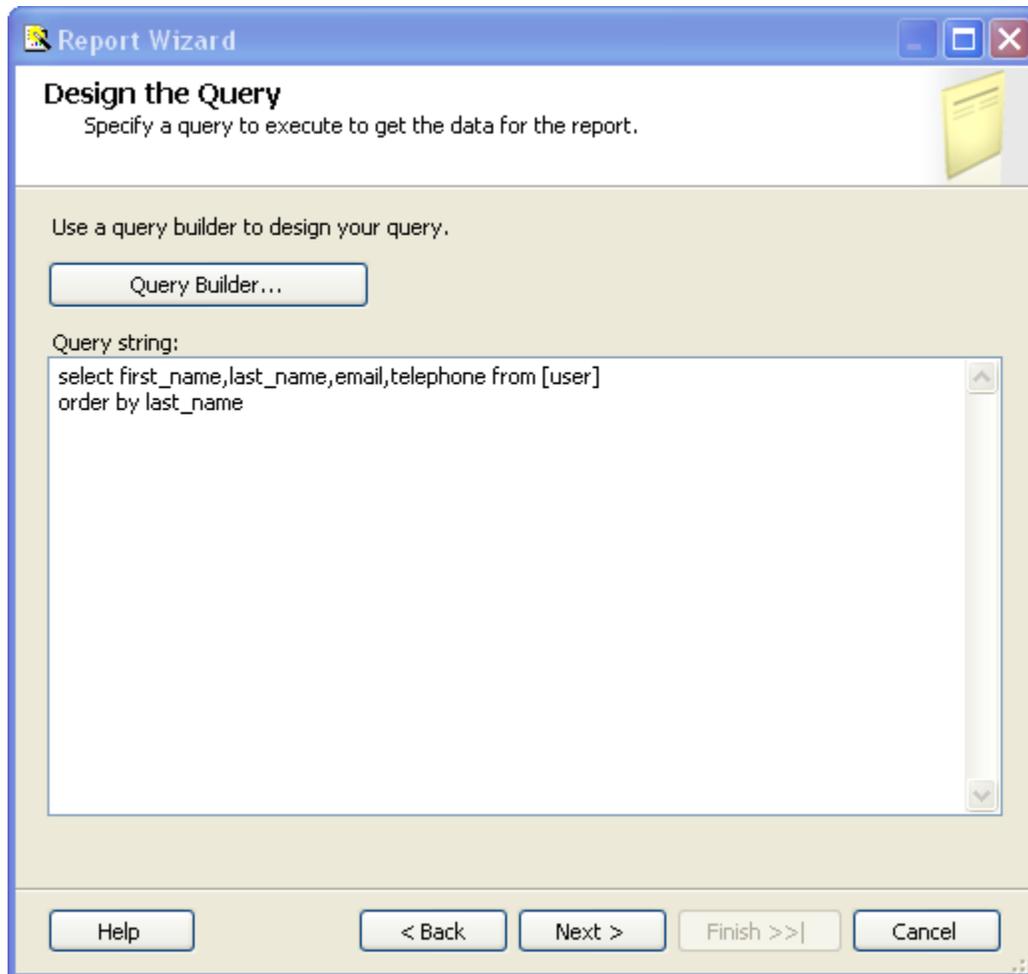
## 5.2 Select the Data Source

You can create a unique Data Source for this Report, but typically, you would use the default Shared Data Source that you created, as shown here.

The screenshot shows the 'Report Wizard' dialog box with the title 'Select the Data Source'. The instruction reads: 'Select a data source from which to obtain data for this report or create a new data source.' There are two radio button options: 'Shared data source' (selected) and 'New data source'. Under 'Shared data source', a dropdown menu shows 'Innovator'. Under 'New data source', there are fields for 'Name' (containing 'DataSource1'), 'Type' (dropdown menu showing 'Microsoft SQL Server'), and 'Connection string' (a large empty text area). To the right of the 'Connection string' field are two buttons: 'Edit...' and 'Credentials...'. At the bottom left is a checkbox labeled 'Make this a shared data source' which is unchecked. At the bottom of the dialog are five buttons: 'Help', '< Back', 'Next >', 'Finish >>|', and 'Cancel'.

## 5.3 Design the Query

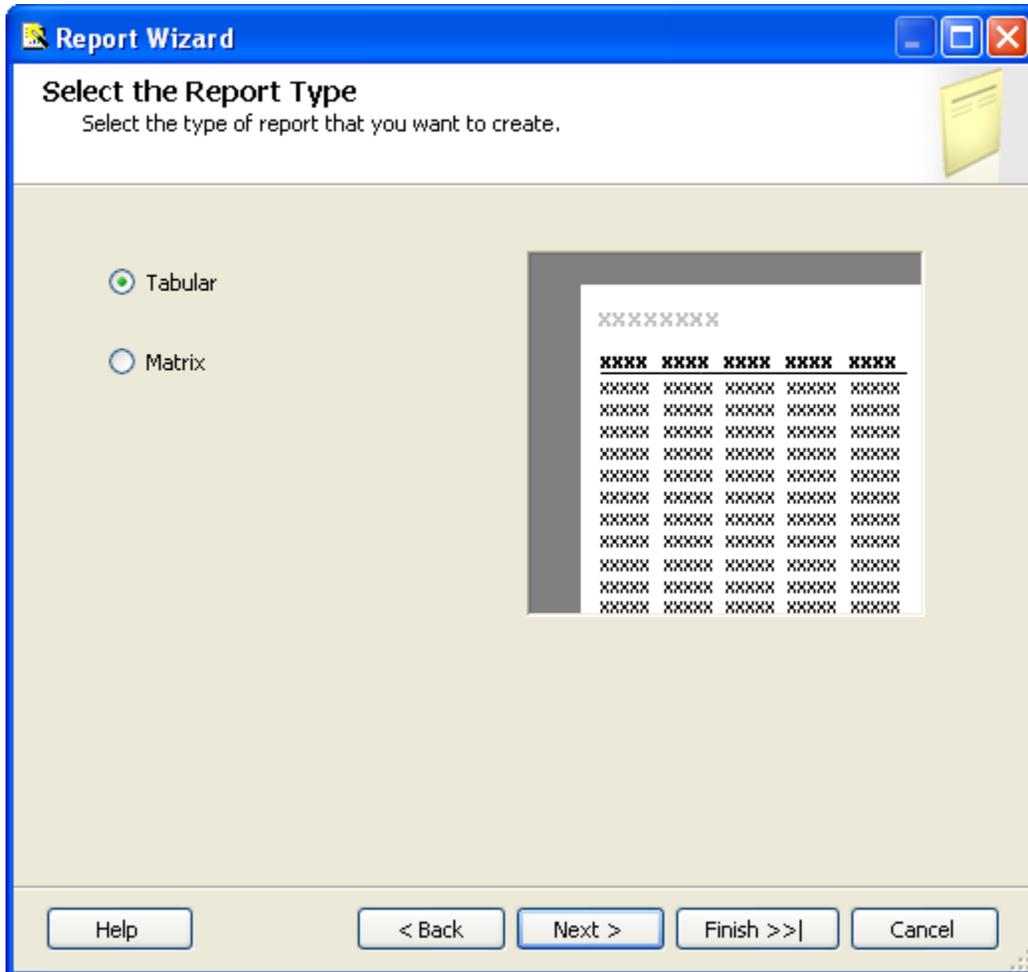
You need to provide the SQL Select query that fetches the data for the Report. In many cases you can enter the simple select clause in the dialog directly.



**Note:** It is possible to pass Named Parameters into the query such as:  
`SELECT * FROM [PROJECT] WHERE id=@ID`  
The 'Edit...' button opens a Query Builder interface, which is covered later in more detail.

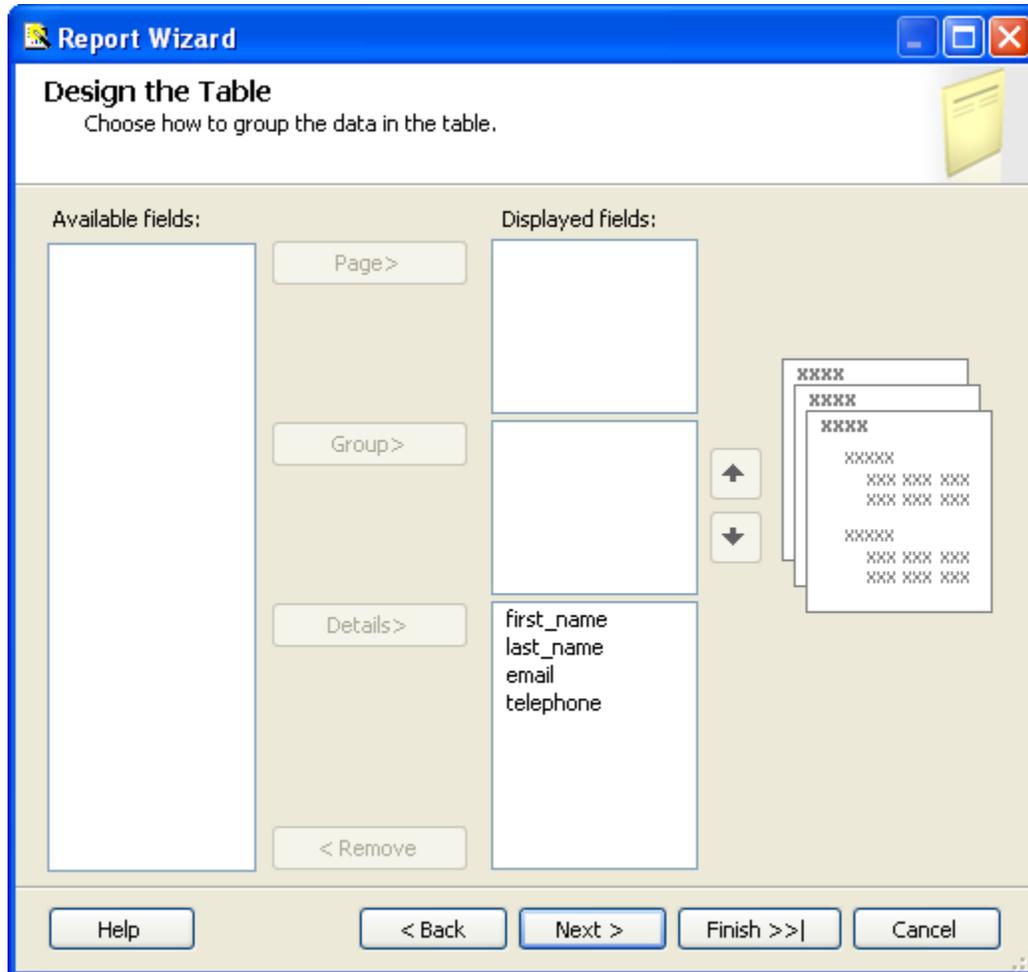
## 5.4 Select the Report Type

There are two choices for the Report Type: Tabular (column layout) and Matrix (rows and columns layout). Select **Tabular**:



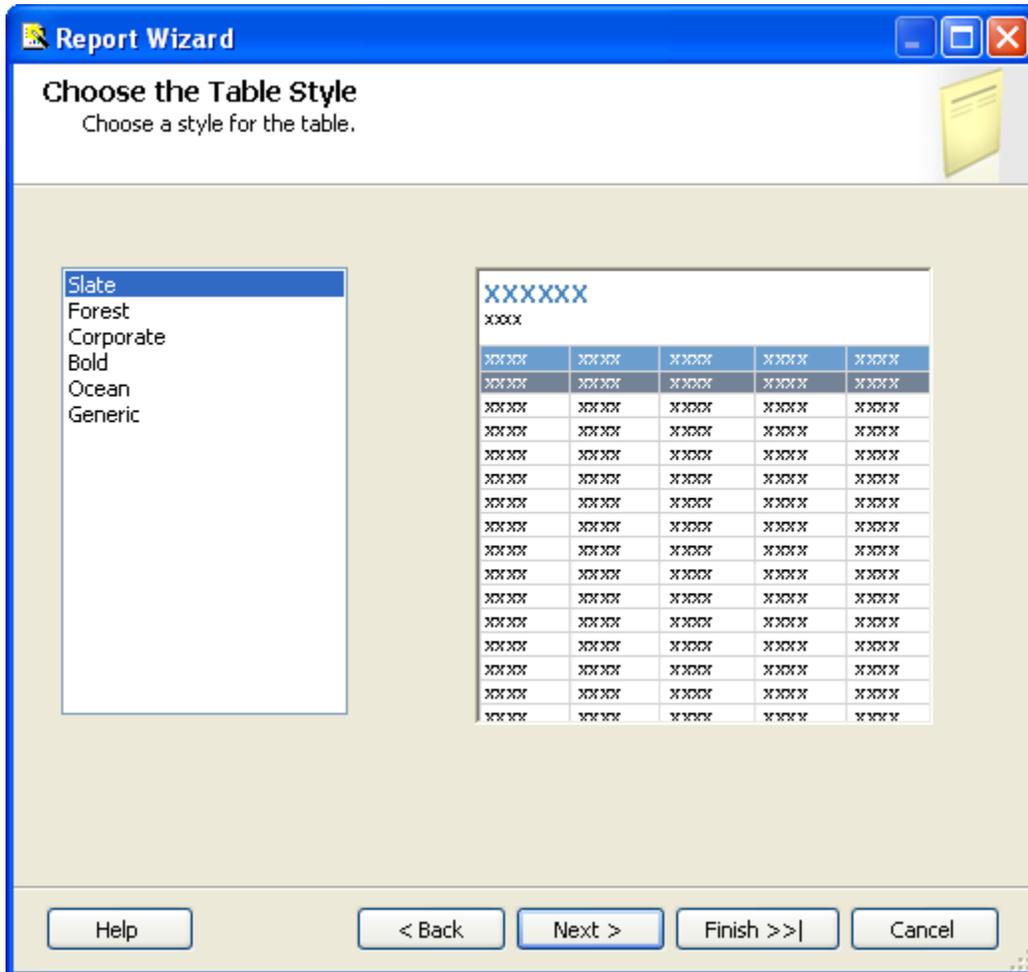
## 5.5 Design the Table

Select the fields that you want to show on the Report. In this case we were selective about which fields to return from the query select clause so we want all the fields.



## 5.6 Choose the Table Style

Select the style for the Report table. This example uses the default bold style.



## 5.7 Name the Report

The final step in the Report wizard is to name the Report.

**Note:** The Report Name must be meaningful. It must also be the same name you specified as the name of the Report Item in Aras Innovator.

**Report Wizard**

**Completing the Wizard**  
Provide a name and click Finish to create the new report.

Report name:  
User Report

Report summary:

Data source: Innovator  
Connection string: Data Source=Laptop07;Initial Catalog=Innovator81  
Report type: Table  
Layout type: Stepped  
Style: Slate  
Details: first\_name, last\_name, email, telephone  
Query: select first\_name,last\_name,email,telephone from [user]  
order by last\_name

Preview report

Help < Back Next > Finish Cancel

## 5.8 Wizard Report Results

The Report wizard builds the report, which looks similar to the following screen shot:

### User Report

first name	last name	email	telephone
Innovator	Admin		
Vault	Admin		
Aras	PLM		
Super	User		

Once the Report is opened in the Layout Tab you can make further changes as required. In this example, we camel case the column headers. For example, first name becomes First Name and we resize the width of the table and the columns to take up 6.5 inches horizontally.

## 5.9 Visual Studio Layout

The Report pane has the following tabs:

- **Data:** Enables you to edit the Report query. Look at the appendix in this document to see a more complex Report query example, using the graphical query builder instead of the wizard.
- **Layout:** For visually designing the Report with drag and drop functionality.
- **Preview:** For viewing the finished report with real data.

The **Properties** panel on the right is used for setting fonts, color, and other visual properties.

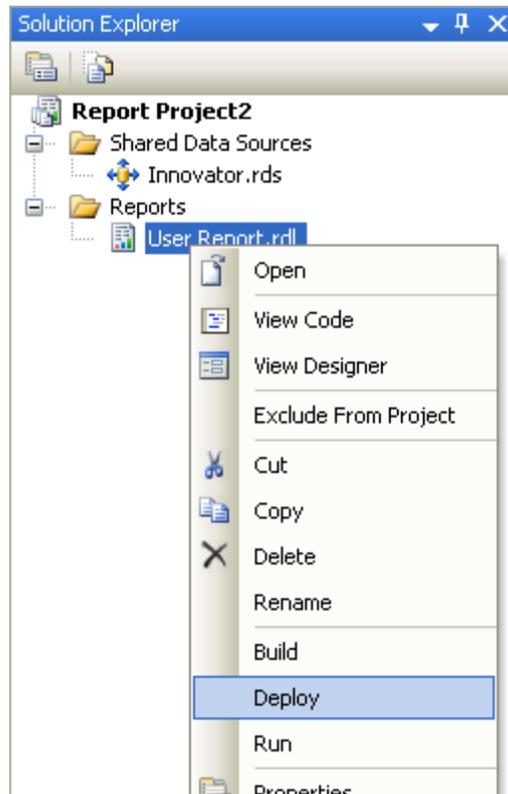
The **Fields** panel on the left is used to drag database fields onto the report.

The **Toolbox** panel also on the left is for dragging Report controls onto the Report layout. This is how you can add tables, labels, images, and charts to the Report layout.

**Note:** Use the **View --> Fields** menu pick to open the Fields panel when in Layout mode.  
Use the **View --> Toolbox** menu pick to open the Toolbox panel.  
To open the Header and Footer, right-click to open the context menu in the pink field in the Report layout.

## 5.10 Deploying the Report

Once you are satisfied with the Report query and layout as viewed from the Preview Tab, you need to deploy the Report to the Reporting Service. Right-click on **User Directory Report** item in the Solution Explorer panel and select **Deploy** from the context menu. Watch for error messages in the output window at the bottom of the frame.



## 5.11 Confirm Deployment

To confirm the new report has been deployed, open IE Browser and navigate to <http://localhost:8080/Reports>. You should see the 'Innovator Reports' folder. Click on that link and you should see the report you created

Select the hyperlink for the new Report, open it, and run the Report.

**Note:** The URL for directly testing this report outside of Aras Innovator would look like this:  
[http://localhost:8080/ReportServer/?/Innovator Reports/User Directory](http://localhost:8080/ReportServer/?/Innovator%20Reports/User%20Directory).

## 5.12 Running the Report from within Aras Innovator

In order for users to run the new Reporting Services Report from within Aras Innovator you need to create an Innovator Report Item. The important settings to enable the Innovator/Reporting Services interface are:

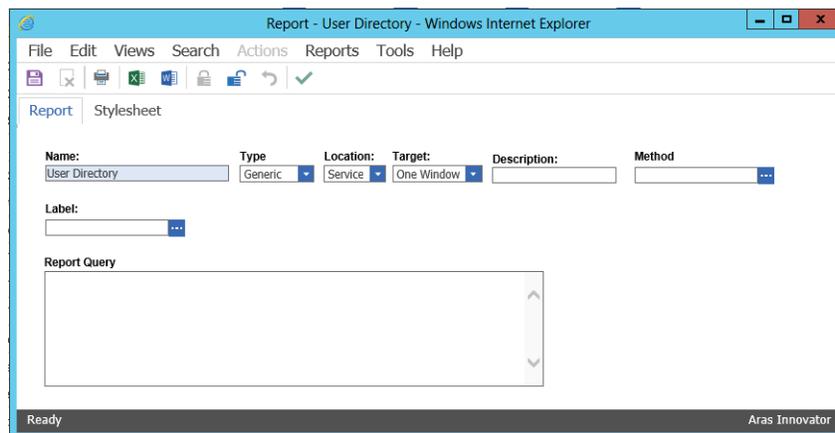
- The Innovator Report Item name must be exactly the same as the Reporting Services Report name.

- The Location Field choice must be set to the new **Service** option.
- The Report Query Field specifies the parameters that are passed to the Report Server.

### 5.12.1 Adding Aras Innovator Report Item

1. Log into Aras Innovator as **admin**.
2. In the TOC, navigate to **Administration --> Reports**.
3. Click **New** on the main Toolbar.
4. When the new Report Form opens, enter the name of the Report (again this is the name you specified when you created the Report in Visual Studio).
5. Select the Report Type, which in this case is **Generic**, meaning this Report is always available.
6. Select the Report Location, which in this case is **Service**.
7. Select the Report Target, which in this case is **Window**.

Because this sample Report is of type ItemType there is no Report query Value.



**Note:** If you are using Firefox, you have to manually enter a stylesheet under the **Stylesheet** tab.

8. Test the Report by clicking on **Reports** in the main menu bar. You should see the new **User Directory** choice. Select it and you should see a new window open displaying the **User Directory** Report.

### 5.12.2 Passing Named Parameters to the ReportServer

The value of the Innovator Report Item Property `report_query` is appended to the ReportServer URL providing additional parameters to control the ReportServer.

For example, the ID of the Item can be passed as the Named Parameter `@ID` for the SQL Select for the Reporting Services Report as in this example:

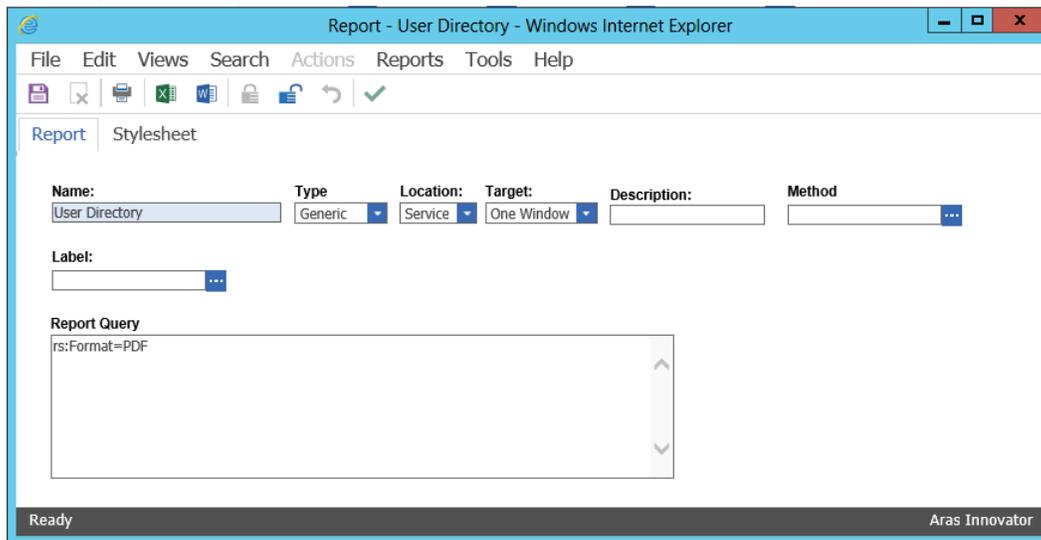
```
SELECT * FROM [PROJECT] WHERE id=@ID
```

To pass the ID for the context Item (the selected Item) on the URL to the ReportServer the Innovator Report Item `report_query` Property would look like this:

```
np:id=<xsl:value-of select="@id"/>
```

This is actually an XSLT stylesheet fragment and is the directive for Innovator to add the string &id=ACBDEF0123456789ACBDEF0123456789 to the end of the ReportServer URL (but the actual ID value is used).

In this case the Innovator Report is of type Generic so no ID is required but perhaps we want the Reporting Services Report to be returned in PDF or Excel format. We can control the ReportServer by adding the rs:Format=PDF parameter as the report\_query value for the 'User Directory' Report.



**Note:** If you need to include more than one parameter for the report\_query value, you need to use the Entity & rather than the actual & symbol to delimit the parameters. Remember that the report\_query value is eventually part of the query\_string for the URL to the ReportServer but is actually an XSLT stylesheet fragment. This means that special symbols like <, >, and & need to be protected in XML should be entered as Entities &lt; &gt; and & respectively.

For example, to pass the Named Parameter ID and also the Format PDF in the same report\_query the value would look like this:

```
np:id=<xsl:value-of select="@id"/>&rs:Format=PDF
```

## 6 Report Server query\_string Parameters

---

There are several parameters that you can use to control how the Reporting Services run your Report requests. Include these in the Innovator Report Item's report\_query property, which the client then uses to form the query\_string for the ReportServer request:

### 6.1 Named Parameters

Named Parameters passed onto the SQL Select query. For example,

```
np:last_name=Kohl
```

Would map the value Kohl to the Named Parameter @last\_name in the SQL Select:

```
SELECT * FROM [USER] WHERE last_name=@last_name
```

### 6.2 Format Parameter

Format parameter to control the format the Report is rendered:

```
rs:Format=XML
```

```
rs:Format=PDF
```

```
rs:Format=HTML4.0
```

```
rs:Format=MHTML
```

```
rs:Format=EXCEL
```

```
rs:Format=Word
```

### 6.3 Report Toolbar

Turn off the Report Toolbar:

```
rc:Toolbar=false
```

### 6.4 Parameters Form

Turn off the Parameter Collection area above the Report, which is a simple dynamically created Form with Fields to allow the user to enter input for the Named Parameters for the SQL Select query. The Named Parameters passed on the ReportServer URL query\_string are shown and the user fills in the rest:

```
rc:Parameters=false
```

```
rc:Parameters=Collapsed
```

### 6.5 Zoom

Control the zoom:

```
rc:Zoom=100
```

```
rc:Zoom=% zoom as integer
```

```
rc:Zoom=Page Width
```

rc:Zoom=Whole Page

## 6.6 Reports Folder

The default Folder where Reporting Services Reports are deployed is in 'Innovator Reports.' However, you may deploy the Reports in other Folders. Specify this using the Parameter:

irs:Folder=**Your Folder Name**

## 6.7 Report Name

The Aras Innovator client automatically appends the Parameter to specify the Report to run on the query\_string, which is the name of the Innovator Report Item. However, if you run reports programmatically you may need to set this directly yourself:

irs:Report=**Your Report Name**

## 7 Report Manager

The Reporting Services ReportServer comes with a Report Manager page to administer the Reports, Folders, Data Sources, and so on. This page has been integrated into Aras Innovator client via an Innovator Report that opens the Report Manager page (see [3 Configuring Reporting Services](#) for more information about this Report Item).

You can move reports that you created and tested on the development machine to a production ReportServer by exporting the RDL file for the Report from your local development machine and then importing it into the production machine.

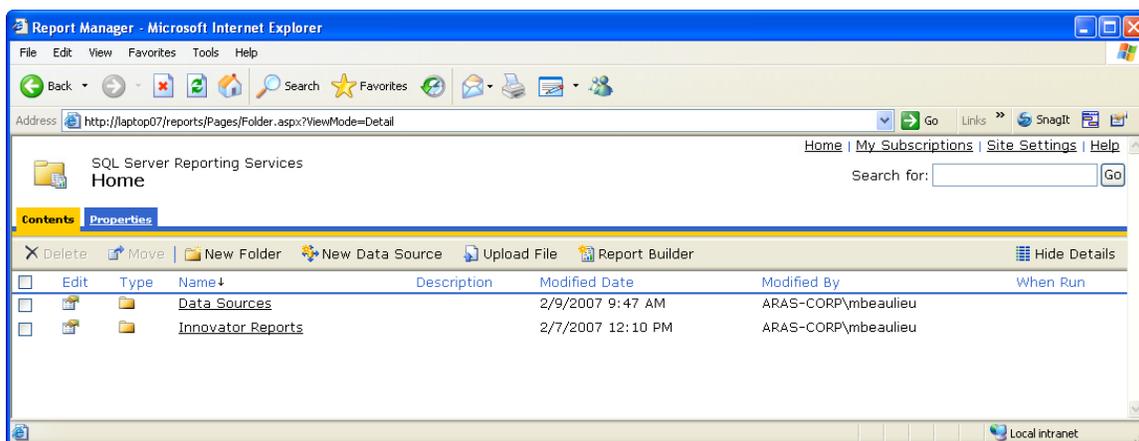
The process of exporting a Report and importing it into another ReportServer and enabling the Report in Aras Innovator is a four step process:

1. Export the RDL file via the Report Manager page.
2. Import the RDL file via the Report Manager page.
3. Reassign the Data Source to the imported Report.
4. Add an Innovator Report Item to call the Reporting Services Report.

### 7.1 Opening the Report Manager page

1. In the TOC, navigate to **Administration --> Reports**.
2. On the main menu, click **Reports** and then, **Report Manager**.
3. The Report Manager page opens in a new window as shown here:

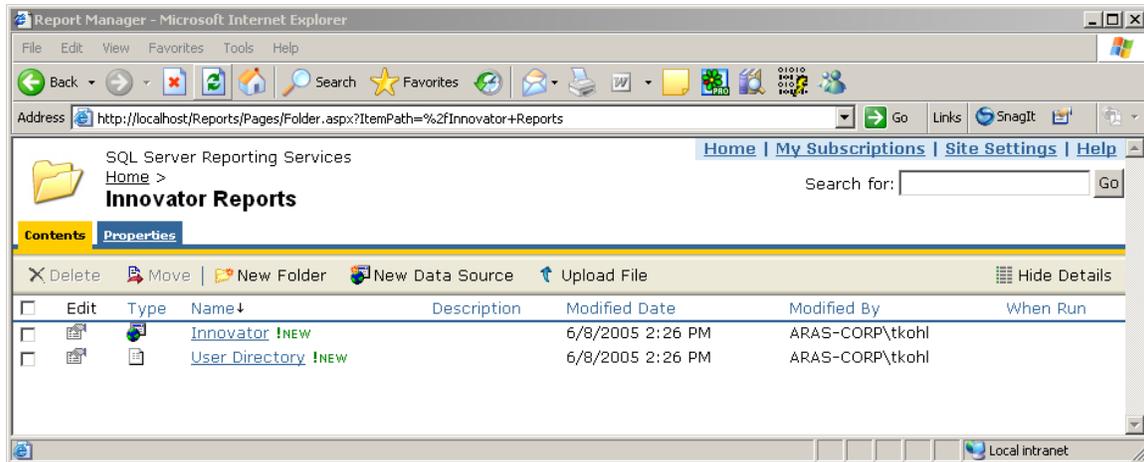
You may need to click **Show Details**.



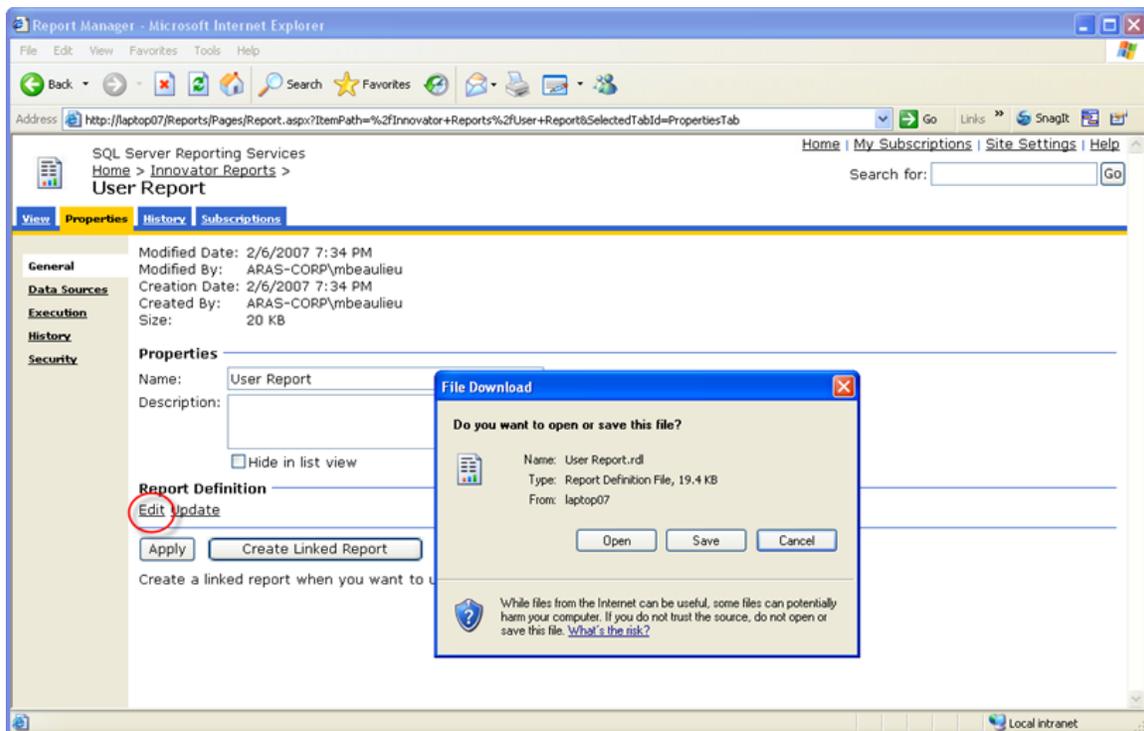
**Note:** This same page can be opened from your browser with the URL <http://localhost:8080/Reports>.

## 7.2 Export the RDL

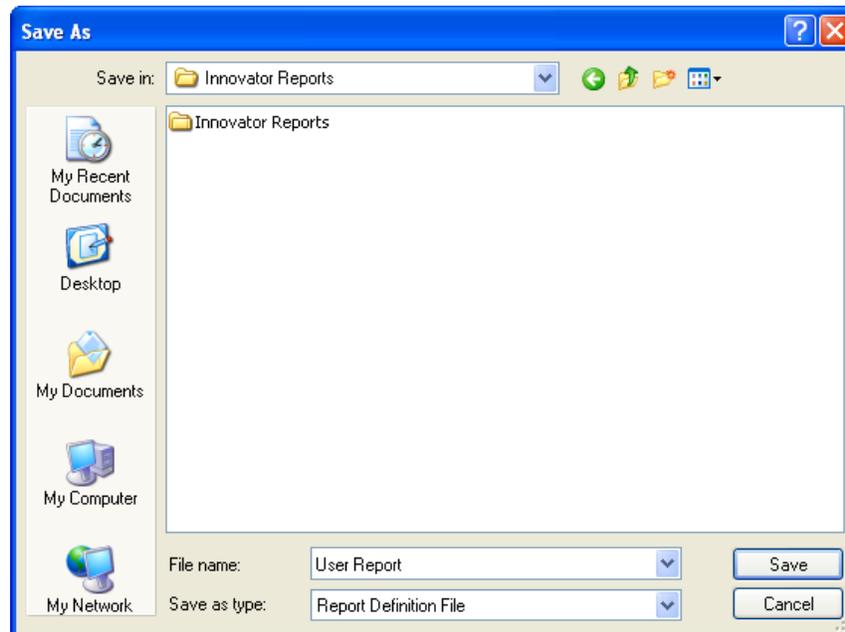
1. To export an RDL file for a Report, click on the **Innovator Reports** Folder. You see a list of Reports and Shared Data Sources.



2. Click on the **properties** icon in the Edit column for the Report you want to export. This opens the Properties Page for the Report.
3. Click the **Edit** link that appears below the 'Report Definition' label. The File Download dialog box appears asking for confirmation that you want to save the RDL file.



- Click **Save**. The Save As dialog box appears.

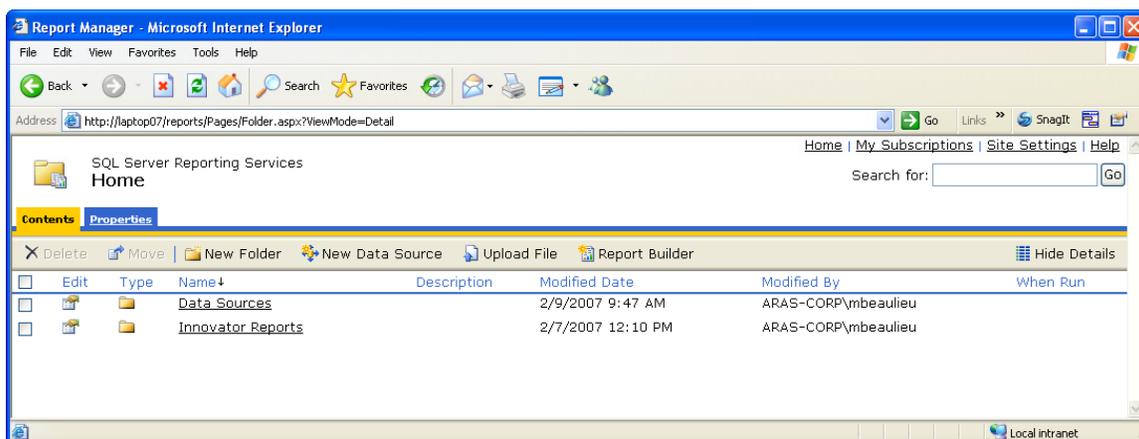


## 7.3 Import the RDL

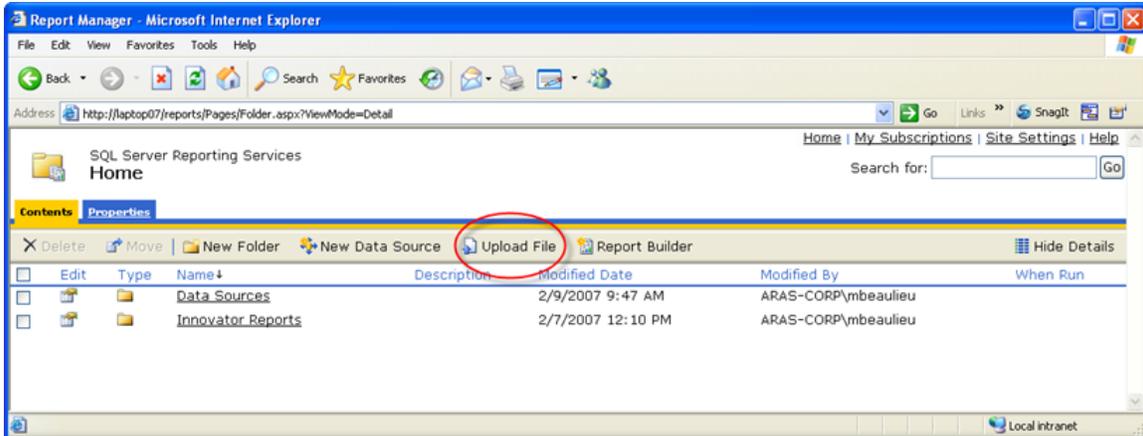
Log into the target Aras Innovator Server:

- In the TOC, navigate to **Administration --> Reports**.
- Click **Reports** on the main menu and select **Report Manager**. The **Report Manager** page opens in a new window as shown here:

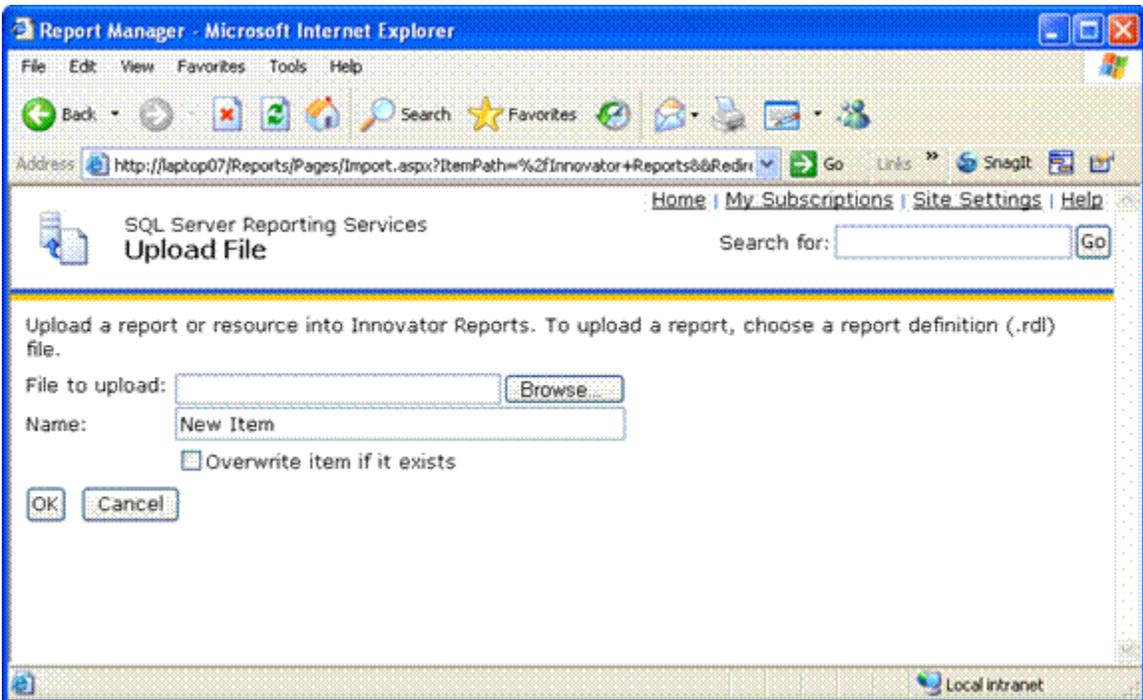
**Note:** This same page can be opened from your browser using the URL <http://localhost:8080/Reports>.



- Click the **Innovator Reports** Folder to see a list of Reports and Shared Data Sources.
- Click **Upload File**.

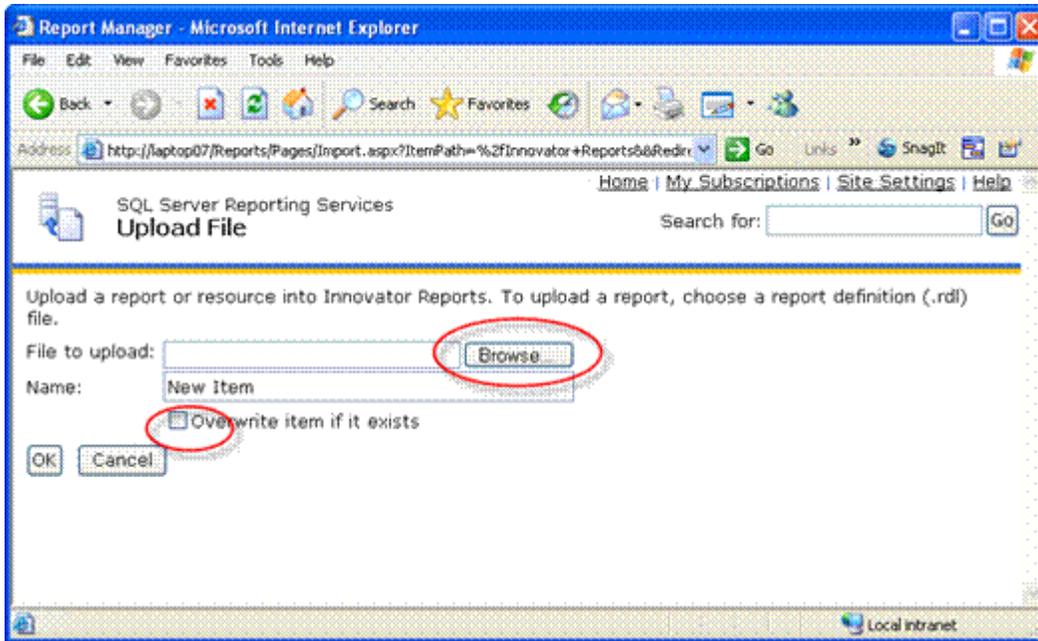


This opens the Upload File page.



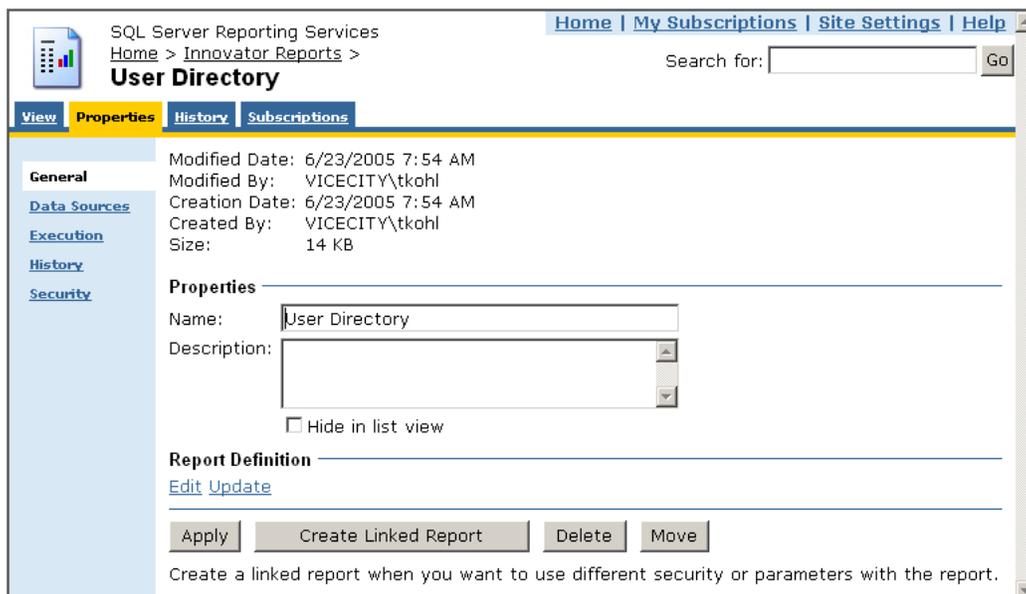
5. Click **Browse...** to open the File Selection dialog.
6. Select the RDL file and click **Open**. This inserts the file name in the File to upload field and also sets the Name field to the name of the selected RDL file.

If this is a new version of an existing Report select the **Overwrite** checkbox. Click **OK** to complete the upload. The RDL file is uploaded to the target ReportServer and deployed. You should see the new Report in the Folder now.

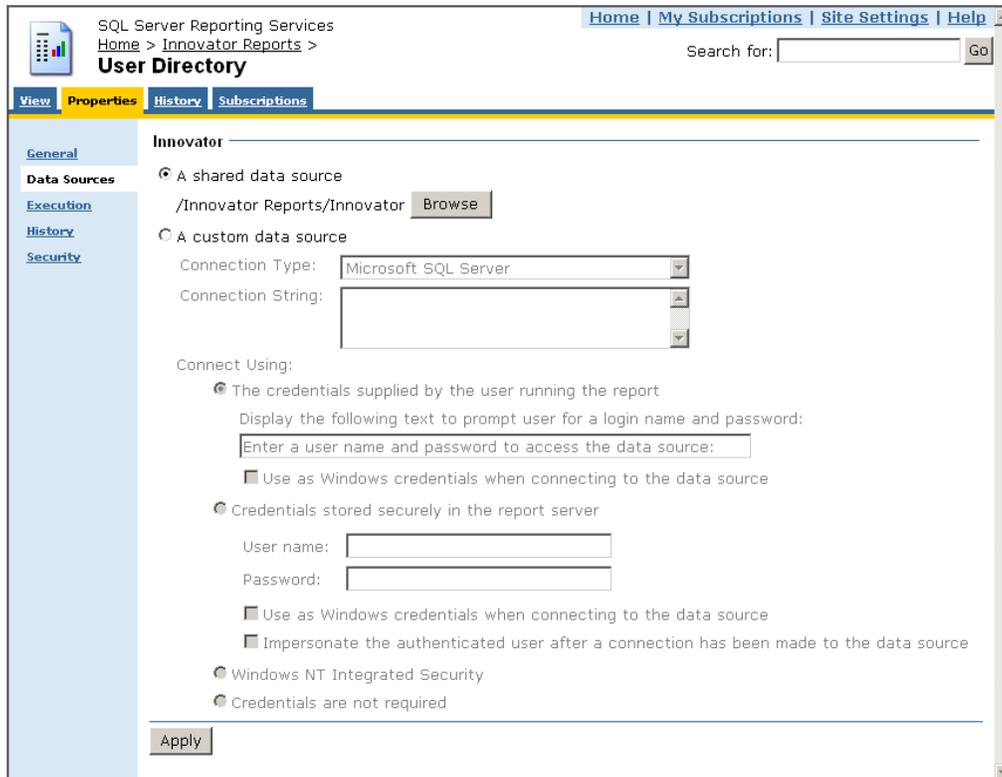


## 7.4 Select the Shared Data Source

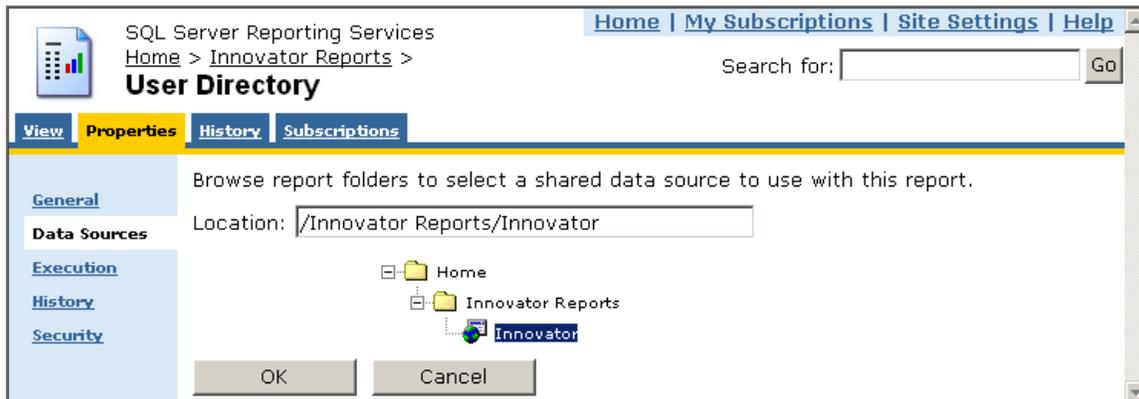
You may need to change Data Source for the Report if the name of the Shared Data Source is different on the target ReportServer. Click on the **properties** icon in the Edit column for the new Report that was uploaded. This opens the Properties page for the Report where you can select its Shared Data Source.



1. Select the **Data Sources** navigation link. The first choice **A shared data source** should be selected.



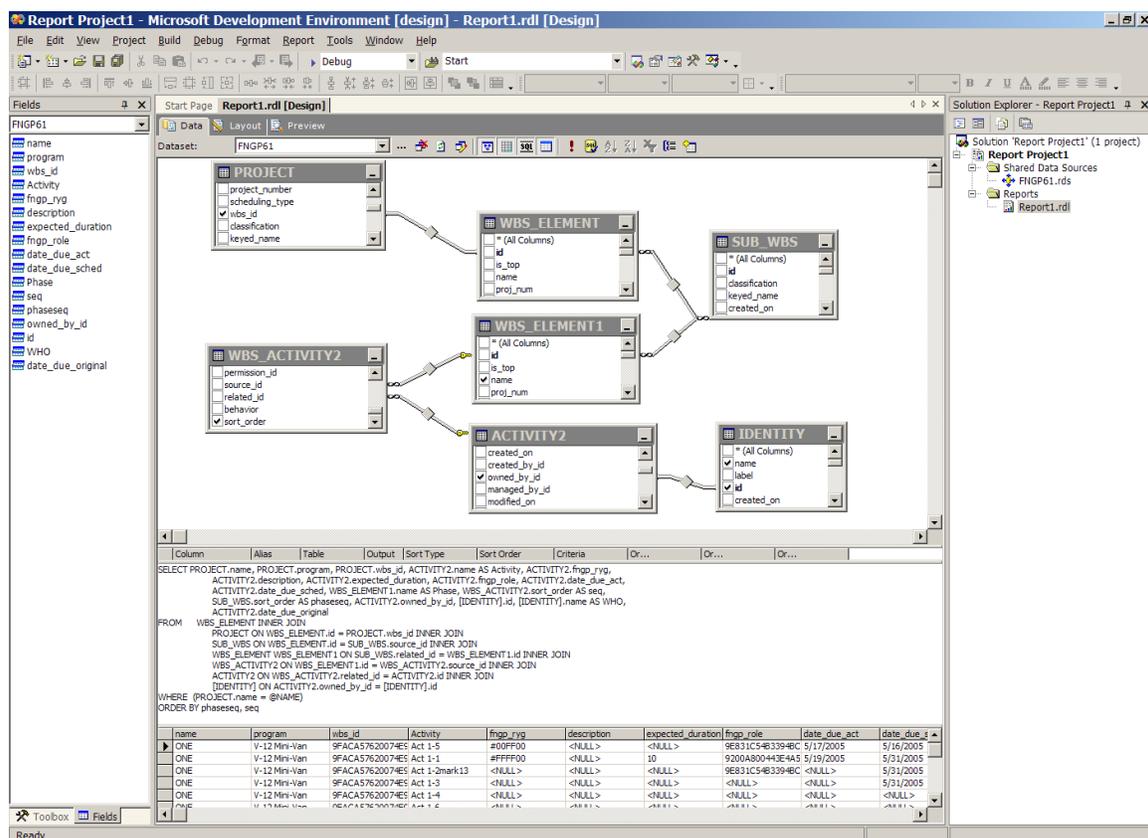
2. If the named Shared Data Source is incorrect for this ReportServer, click **Browse** to open the Shared Data Source page.
3. Navigate the Folders to locate the desired Shared Data Source, select it, and click **OK**.



## 8 Graphical Query Builder

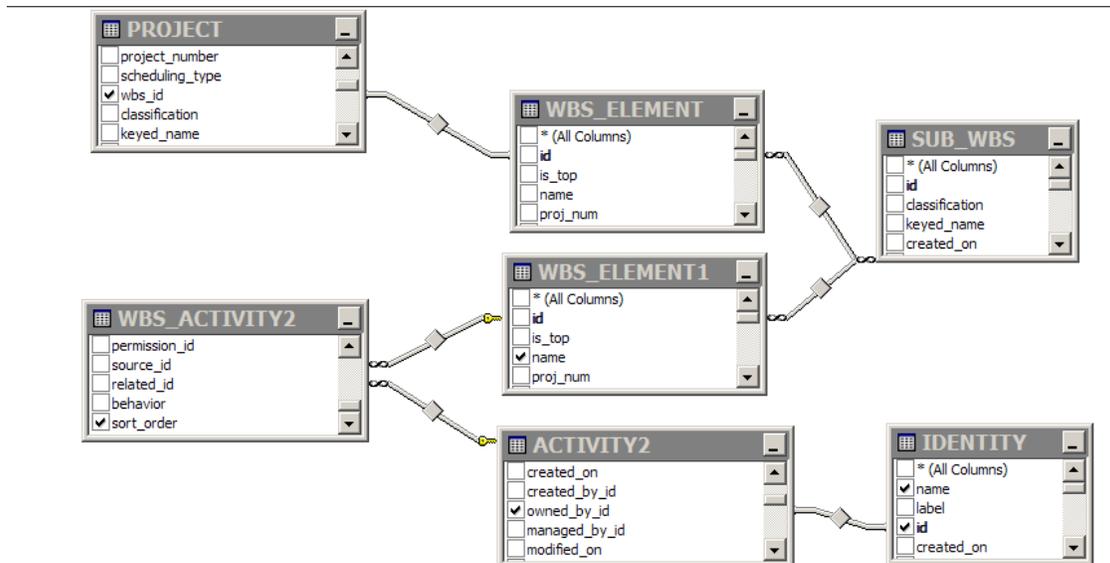
The Visual Studio report designer has a graphical query builder that can be useful when constructing reports for deep item structures such as the Project Item structure.

1. On the **Data Tab** in the Report Designer, select the icon  to open the graphic design window.



The screenshot displays the Microsoft Reporting Services Graphical Query Builder interface. The main window shows a visual diagram of database tables and their relationships. The tables included are PROJECT, WBS\_ELEMENT, SUB\_WBS, WBS\_ELEMENT1, WBS\_ACTIVITY2, ACTIVITY2, and IDENTITY. Lines connect the tables to show foreign key relationships. Below the diagram is a SQL query window showing the generated SQL code, and at the bottom is a data grid with columns like name, program, wbs\_id, activity, and various dates.

2. Manipulating the graphics automatically creates the correct query with the joins.



This results in the following SQL query:

```
SELECT PROJECT.name, PROJECT.program, PROJECT.wbs_id, ACTIVITY2.name AS
Activity, ACTIVITY2.fngp_ryg, ACTIVITY2.description,
ACTIVITY2.expected_duration, ACTIVITY2.fngp_role, ACTIVITY2.date_due_act,
ACTIVITY2.date_due_sched, WBS_ELEMENT1.name AS Phase,
WBS_ACTIVITY2.sort_order AS seq, SUB_WBS.sort_order AS phaseseq,
ACTIVITY2.owned_by_id, [IDENTITY].id, [IDENTITY].name AS WHO,
ACTIVITY2.date_due_original
FROM      WBS_ELEMENT INNER JOIN
          PROJECT ON WBS_ELEMENT.id = PROJECT.wbs_id INNER JOIN
          SUB_WBS ON WBS_ELEMENT.id = SUB_WBS.source_id INNER JOIN
          WBS_ELEMENT WBS_ELEMENT1 ON SUB_WBS.related_id = WBS_ELEMENT1.id INNER
JOIN
          WBS_ACTIVITY2 ON WBS_ELEMENT1.id = WBS_ACTIVITY2.source_id INNER JOIN
          ACTIVITY2 ON WBS_ACTIVITY2.related_id = ACTIVITY2.id INNER JOIN
          [IDENTITY] ON ACTIVITY2.owned_by_id = [IDENTITY].id
WHERE     (PROJECT.name = @NAME)
ORDER BY phaseseq, seq
```

## 9 Date Related SQL Queries

AML is the language of Aras Innovator, but some external add-ons do connect to Aras Innovator on a direct SQL level. Because Aras Innovator stores DateTimes in SQL Server as UTC, we have provided an add-on function for Microsoft SQL Server that allows the easy conversion of DateTime to and from UTC.

To convert DateTime values from UTC to a specific time zone, use the function ConvertToLocal({value},{Time Zone}). The time zone should be specified according to the registry key name of the time zone desired. (See *Aras Innovator - Configuring Internationalization*) To use the DEFAULT parameter for the {Time Zone}, it is required that a value be set for CorporateTimeZone.

Example:

```
select item_number, created_on
from innovator.Document
```

Would be written as

```
select item_number, innovator.ConvertToLocal(created_on,DEFAULT) as
CreadtedOn
```

```
from innovator.Document
```

Or

```
select item_number, innovator.ConvertToLocal(created_on,'Eastern Standard
Time') as CreadtedOn
```

```
from innovator.Document
```

To convert DateTime values from a specific time zone to UTC, use the function ConvertFromLocal({value},{Time Zone}). Specify the time zone according to the registry key name of the time zone desired. (See *Aras Innovator - Configuring Internationalization*) To use the DEFAULT parameter for {Time Zone}, you must set a value for CorporateTimeZone.

Example:

```
update innovator.Documnet
set effective_date = '1/1/2007 00:00:00.00'
```

Would be written as

```
update innovator.Documnet
set effective_date = innovator.ConvertFromLocal('1/1/2007
00:00:00.00',DEFAULT)
```

Or

```
update innovator.Documnet
set effective_date = innovator.ConvertFromLocal('1/1/2007
00:00:00.00','Eastern Standard Time')
```

This allows users to write queries in a familiar time zone context.

```
select item_number, innovator.ConvertToLocal(release_date,DEFAULT) as
ReleaseDate
```

```
from innovator.Document
```

```
where created_on >= innovator.ConvertFromLocal('1/1/2007
00:00:00.00',DEFAULT)
```

## 10 Cookbook

---

This section provides a set of recipes for performing common reporting tasks.

### 10.1 User Input Reports

You need a Form to collect user input for Named Parameters for the SQL query for Reporting Services based Reports.

#### Technique

An XSLT based Report is used to present a Form to collect the user input. The user input is mapped to a query\_string for the Report Server request via the RSGateway.aspx page.

In the ReportTool/Templates folder there is a UserInputTemplate.txt file that you can use as a template to build the XSLT based Form. This provides a generic way to define the Fields for the user input Form, which opens a modal dialog with a generic HTML page dynamically building the Form based on the Fields defined in the template file.

**Note:** To use 'User Input Reports' you must add the following script to the UserInputDialog.html located in the ReportTool folder and save it:

```
<script type="text/javascript"
src="../../../javascript/AddConfigurationLink.js"></script>
```

W

Use the following procedure to build a user input Form for Reporting Services based Reports with Named Parameters:

1. Login to Aras Innovator as admin.
2. In the TOC, navigate to **Administration --> Reports**.
3. Open a new Report Item.
4. Set the Report Item properties as follows:
  - a. **Name** = the name of your Report as deployed in Visual Studio to the Report Server.
  - b. **Type** = Generic or ItemType depending on when you want the Report to appear on the Report menu; Generic always, ItemType only when that ItemType is selected off the Main Tree.
  - c. **Location** = Server; this is required because the XSLT page returns an HTML page with JavaScript that needs to be parsed and Client side Report only writes the transformed page to the browser window and thus the JavaScript is not parsed.
  - d. **Target** = Window; again because the page has JavaScript we need a window to parse the JavaScript. This page presents status info to the user as the Report is being processed and the final Report results are shown in this same window.
  - e. **Report Query** = leave blank it is currently not used for this purpose.
5. Click on the **Stylesheet** tab to insert the template code for setting up the Fields for the modal dialog:
  - a. Scroll to the bottom of the page.
  - b. Open the **ReportTool/Templates/UserInputTemplate.txt** file and select the whole document content.

- c. Replace the <body> tag in the Stylesheet Tab with the content from the UserInputTemplate.txt file.
- d. Edit the **userInputFields** object, which is an IOM Item by setting the properties for the Item to match the Named Parameters for the SQL query for the Report as deployed to the Report Server.

```

///
/// Set the User Input Fields...
/// The property names must match exactly the names you used for the
/// Named Parameters in the SQL Query.
///
/// For example, this SQL Query for the GetParts Report in the
/// Report Server has the following
/// Named Parameters: part_number, description, and cost;
///
/// SELECT      part_number, description, cost
/// FROM        MY_PART
/// WHERE       (part_number LIKE @part_number)
///            AND (description LIKE @description)
///            AND (cost LIKE @cost)
///
var userInputFields = aras.IomInnovator.newItem();
userInputFields.setProperty('part_number', '%');
userInputFields.setProperty('description', '%');
userInputFields.setProperty('cost', '%');

```

- e. Click **Apply** at the bottom of the Stylesheet Tab.
- f. Click **Save** on the Report Tool toolbar.

The Report Item should now appear on the Report menu and, when selected, the User Input Dialog should open. When the user clicks **Submit** the user input is mapped as a query\_string and the actual Report is requested from the Report Server via the RSGateway.

In the future the Named Parameters and Report name will be derived and the XSLT based Report Stylesheet will be automatically generated, but for now you need to set these values when using the template.

If you want to add validation or rearrange the Fields on the Form you can make a copy of the ReportTool/UserInputDialog.html page and modify it to meet your needs.

If you need to pass attributes or property values from the selected context Item use the following procedure to set the values to hidden form fields:

6. Edit the following section in the UserInputTemplate.txt file to pack the desired Item attributes and properties into hidden form fields:

```

<!--
The following is an example for passing attributes and properties
from the selected context Item as hidden fields.

```

```

For example, pack the id attribute from the context Item using
XSLT Attribute Substitution and nested xsl tags for the properties.

```

```
<form>
  <input type="hidden" name="id" value="{//Item/@id}/>
  <input type="hidden" name="name">
    <xsl:attribute name="value" select="//Item/name"/>
  </input>
</form>
-->
```

7. Edit the following section from the UserInputTemplate.txt file to pass those hidden field values as Field values for the user input dialog:

```
///
/// If there are properties from the selected context Item packed
/// as hidden fields on the form use this:
///
userInputFields.setProperty('id', document.form[0]['id'].value);
userInputFields.setProperty('name', document.form[0]['name'].value);
```

## 10.2 Report Chooser

You need a dialog to present a set of Reporting Services-based Reports to choose from for the selected Item.

### Technique

An XSLT-based Report is used to present a dialog to get the Report choice. The user selection is mapped to a query\_string for the Report Server request via the RSGateway.aspx page. This is similar to [10.1 User Input Reports](#) but in this case we do want the ID for the selected Item to be passed as a Named Parameter on the query\_string.

In the ReportTool/Templates folder there is a file ChooseReportTemplate.txt that you can use as a template to build the XSLT based Form. This template provides a generic way to define the Reports choices and it opens a modal dialog.

Use the following procedure to build a Report Chooser dialog for Reporting Services-based Reports:

1. Login to Aras Innovator as **admin**.
2. In the TOC, navigate to **Administration --> Reports**.
3. Open a new Report Item.
4. Set the Report Item properties as following:
  - a. **Name** = the name of your Report as deployed in Visual Studio to the Report Server.
  - b. **Type** = Item (You do not need the report\_query template when prompted).
  - c. **Location** = Server; this is required because the XSLT page returns an HTML page with JavaScript that needs to be parsed. The Client side Report only writes the transformed page to the browser window which means the JavaScript is not parsed.
  - d. **Target** = Window; again because the page has JavaScript, we need a window to parse the JavaScript. This page presents status info to the user as the Report is being processed. The final Report results are shown in this same window.
  - e. **Report Query** = leave this blank as it is currently not used for this purpose.
5. Click on the **Stylesheet** tab to insert the template code for setting up the Report choices for the modal dialog:

- a. Scroll to the bottom of the page.
  - b. Open the **ReportTool/Templates/ChooseReportTemplate.txt** file and select all of the document content.
  - c. Replace the <body> tag in the Stylesheet Tab with the content from the UserInputTemplate.txt file.
  - d. Edit the AddReport() calls to the Report choices:
 

```

      ///
      /// Add your Report Choices here...
      ///
      AddReport('Report1', 'Report One', 'rs:Format=Excell');
      AddReport('Report2', 'Report Two', 'rs:Format=HTML4.0');
      AddReport('Report3', 'Report Three', 'rs:Format=PDF');
      
```
  - e. Click **Apply** at the bottom of the Stylesheet Tab.
6. Click **Save** on the Report Tool toolbar.
  7. In the TOC, navigate to **Administration --> Reports**.
  8. Search for the **ItemType** for this Report.
  9. Edit the **ItemType** and select the Reports Tab.
  10. Add an Existing related Item and select this Report.
  11. Click **Save** on the ItemType toolbar.

The Report should now appear on the Report menu when you select the item. When you click **Submit**, the selected Report is requested from the Report Server via the RSGateway.

The ID for the selected Report is automatically passed as a Named Parameter np:id so you must name your Named Parameter in the SQL query using a lowercase ID also.

## 10.3 Date Selector

You need a Form with two date fields to collect user input for Named Parameters for narrowing the results of a SQL query for Reporting Services-based Reports.

### Technique

A Client-Side Report is used to call JavaScript, which presents the user with a dialog for selecting a date range. Upon the selection of the date range, the user clicks **Run Report** which calls the RSGateway.aspx page, directly passing the date range as named parameters to the report query.

### Procedure for building a Date Selector dialog:

1. Log into Aras Innovator as an administrator.
2. Navigate to **Administration --> Methods** and create a new method
  - a. Name = run\_report\_button\_click
  - b. Type = JavaScript
  - c. Method Code =

```

var fromDate = document.forms[0].from_date.value;
var toDate = document.forms[0].to_date.value;

```

```

if(new Date(toDate) < new Date(fromDate))
{
    alert("To Date must be greater than from date");
}
else
{
    var retVal=new Array();
    retVal["runReport"]="1";
    retVal["to_date"] = toDate;
    retVal["from_date"] = fromDate;
    parent.args.dialog.result = retVal;
    parent.args.dialog.close();
}

```

3. Save, Unlock, and Close method
4. Navigate to **Administration --> Forms** and create a new Form:  
     Name=DateRangeSelector
5. Add a new field:
  - a. Name=form\_setup
  - b. Field Type = HTML
  - c. Label = <empty string>
  - d. HTML Code

```

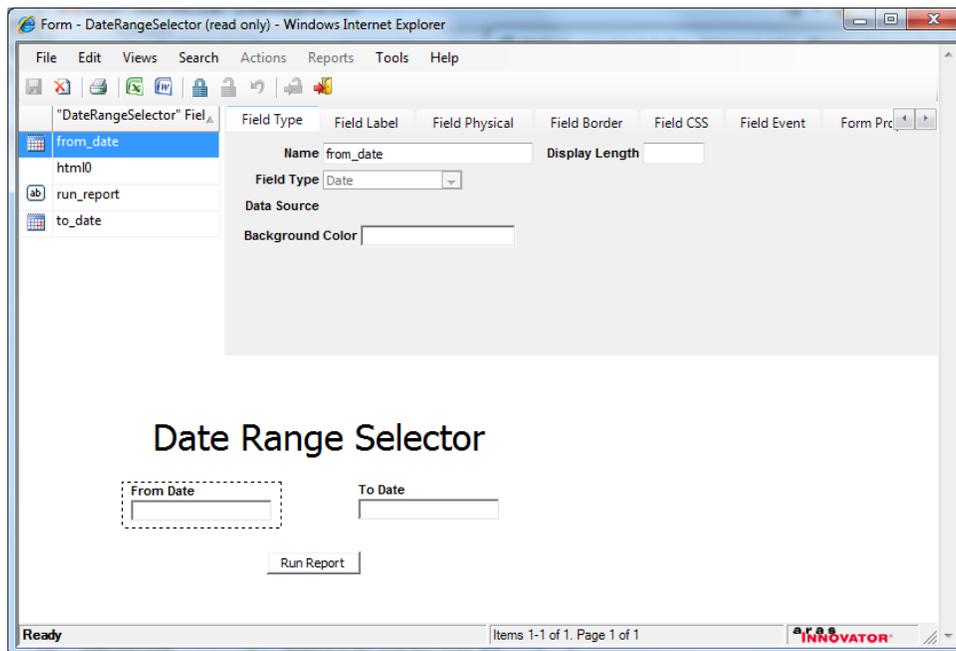
<font size="6">Date Range Selector</font>
<script>
document.isEditMode=true;
var myInnovator = dialogArguments.innovator;
setTimeout('startup();',100);

function startup()
{
    var displayDate = new Date();
    document.forms[0].to_date.value=fixDate(displayDate);
    document.forms[0].from_date.value=fixDate(displayDate);
}
function fixDate(inDate)
{
    var Day = inDate.getDate();
    var DayStr = (Day < 10) ? '0' + Day : Day;
    var Month = inDate.getMonth();
    Month++;
    var MonthStr = (Month < 10) ? '0' + Month : Month;
    var cntx = myInnovator.getI18NSessionContext();
    return cntx.ConvertFromNeutral(
inDate.getFullYear() + "-" + MonthStr + "-" + DayStr, 'date',
'short_date');
}

```

```
</script>
```

6. Add a new field
  - a. Name = from\_date
  - b. Type=Date
  - c. Label = From Date
7. Add a new field
  - a. Name = to\_date
  - b. Type = Date
  - c. Label = To Date
8. Add a new field
  - a. Name = run\_report
  - b. Type = Button
  - c. Label = Run Report
  - d. Add a new Field Event:
    - Method Name = run\_report\_button\_click
    - Event = onClick
9. Save, Unlock and Close Form.



10. Navigate to **Administration --> Methods** and create a new method:

- a. Name = Report\_Date\_Select
- b. Method Code:

```
var param =  
{
```

```

    title : "Date range selector for Reporting Services Report",
    formId : "A0DC688E91834EC98E013A8046F60692", //ID ofDate Range Selector
Form
    aras :          aras,
    resizable:      0,
    dialogWidth:    450,
    dialogHeight:   300,
    content:        "ShowFormAsADialog.html",
    isEditMode:    "1",
    innovator:      aras.IomInnovator

};

function callback(dialogWrapper)
{
    var res = dialogWrapper.result;
    if (!res){ return; }
    var fromDate = aras.convertToNeutral(res["from_date"], 'date',
"short_date");
    fromDate= fromDate.substring(0,fromDate.indexOf("T"));
    var toDate = aras.convertToNeutral(res["to_date"], 'date',
"short_date");
    toDate= toDate.substring(0,toDate.indexOf("T"));

    var reportName = "TestReport"; //Your Report Name Here
    var url  = aras.getServerBaseUrl() + "RSGateway.aspx?irs:Report=" +
reportName;

    //Date Variables in this example is fromDate and toDate
    url += "&np:fromDate=" + fromDate;
    url += "&np:toDate=" + toDate;
    //url += "&rs:Format=Excel";

    var w = window.open();
    w.location = url;
}

var wnd = aras.getMainWindow();
wnd = wnd === top ? wnd.main : top;

```

```
wnd.ArasModules.Dialog.show("iframe", param).promise.then(callback);
```

11. Save, Unlock, and Close method.
12. Navigate to **Administration --> Reports** and create a new Report.
  - a. SSRS Date Selector
  - b. Type = Generic
  - c. Location = Client
  - d. Target = None
  - e. Method = Report Date Select
13. Save, Unlock and Close report.

The new generic report should appear in Reports Menu. Your SQL query now accepts the name parameters of fromDate and toDate into the SQL query as a way to narrow your results in a where clause.

You must simply modify the Report\_date\_Select method to point to the proper Report and use the proper ID of the DateRangeSelector form.