Aras Innovator 12

Microsoft Reporting Services Guide

For use with Microsoft SQL Server 2012

Document #: 12.0.02019053501 Last Modified: 6/16/2020

Copyright Information

Copyright © 2020 Aras Corporation. All Rights Reserved.

Aras Corporation 100 Brickstone Square Suite 100 Andover, MA 01810

Phone: 978-806-9400 Fax: 978-794-9826

E-mail: Support@aras.com

Website: https://www.aras.com

Notice of Rights

Copyright © 2020 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

Se	nd U	s Your (Comments	. 5			
Do	cume	ent Con	ventions	. 6			
1	Introduction7						
2	Insta	alling Re	eporting Services	. 8			
	2.1		on is a component of SQL Server 2012				
		2.1.1 2.1.2 2.1.3 2.1.4 2.1.5 2.1.6	Default Instance Service account Setup Database Engine Configuration and Authentication Mode Analysis Services Configuration Reporting Services Options Remaining Selections	9 10 10 11			
3	Conf	figuring	Reporting Services	12			
	3.1 3.2 3.3	Add Sha	I Reports Folder I Shared Data Source I Reporting User and Role				
		3.3.1 3.3.2	Add local User Account for Reporting Add the Reporting Role				
4	Usin	Jsing Visual Studio for Report Design2					
	4.2 Configure Project Properties		New Report Project e Project Properties / Shared Data Source	21			
		4.3.1 4.3.2	Connection Properties Deploy the Shared Data Source				
5	Crea	iting yo	ur First Report	25			
 5.1 Start a New Report using the Wizard		lew Report using the Wizard e Data Source he Query e Report Type he Table the Table Style e Report Report Results tudio Layout	26 27 28 29 30 31 32 32 33 33 34				
		5.12.1 5.12.2	Adding Aras Innovator Report Item Passing Named Parameters to the ReportServer				



6 Report Server query_string Parameters		36	
	6.1	Named Parameters	.36
	6.2	Format Parameter	.36
	6.3	Zoom	.36
	6.4	Reports Folder	.36
	6.5	Report Name	. 37
		ort Manager	38
	7.1	Opening the Report Manager page	. 38
	7.2	Export the RDL	
	7.3	Import the RDL	. 39
	7.4	Select the Shared Data Source	.41
8	Data	Related SQL Queries	A A



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?
- o 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 Subject: Aras Innovator Documentation

Or,

Postal service: Aras Corporation 100 Brickstone Square Suite 100 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 https://www.aras.com/support/



Document Conventions

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

Table 1: Document Conventions

Convention	Description		
Bold	This shows the names of menu items, dialog boxes, dialog box elements, and commands. Example: Click OK .		
Code	Code examples appear in courier text. It may represent text you type or data you read.		
Yellow highlight	Code with yellow highlight is used to draw attention to the code that is being indicated in the content.		
Yellow highlight with red text	Red color text with yellow highlight is used to indicate the code parameter that needs to be changed or replaced.		
Italics	Reference to other documents.		
Note:	Notes contain additional useful information.		
Warning	Warning contains 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 File> Save> OK.		

©2020 Aras Corporation All Copyrights Reserved.



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 2012, and any customer with a SQL Server 2012 license can install Reporting Services. (See installation instructions below).

Usage of this release is recommended only for those with advanced Aras Innovator and SQL training. Primary benefits to switching from stylesheet driven reports to Report Server:

- Query building is in SQL, and is graphical (same as in Enterprise Manager).
- Report definitions are transportable, you can develop on your laptop, and then deploy to a production server.
- Report layout is more drag-n-drop and has more powerful formatting tools.
- The resulting reports are paginated.
- The end-user can easily print, PDF, or export to Excel the report output.
- Excel like Charts and graphs can be produced

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 2012 and can be installed by selecting the 'Reporting Services' option during the SQL server installation.

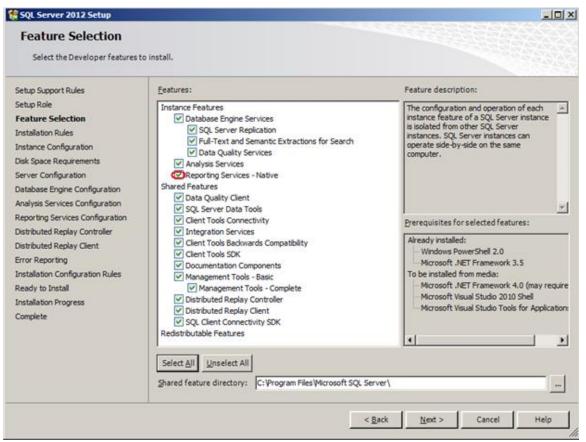


Figure 1.

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 2012 for report design and deployment

2.1 Installation is a component of SQL Server 2012

The following is a summary of dialogs to be used when installing SQL server 2012.

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

©2020 Aras Corporation All Copyrights Reserved.



2.1.1 Default Instance

🏶 SQL Server 2012 Setup					_ _ _ _ ×
Instance Configuration Specify the name and instance II		ver. Instance ID becomes part of the installation path.			
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Analysis Services Configuration Reporting Services Configuration Distributed Replay Clent Error Reporting		MSSQLSERVER 2012 C:\Program Files\Microsoft SQL Server\ C:\Program Files\Microsoft SQL Server\MSSQL11. y: C:\Program Files\Microsoft SQL Server\MSSQ11. https://www.servert.com/station/st			
Installation Configuration Rules	Instance Name	Instance ID	Features	Edition	Version
Ready to Install	MSSQLSERVER	MSSQL10_50.MSSQLSERVER,MSAS10_50.MSSQLSERVER,MSRS10_50.MSSQLSERVER	SQLEngine,AS,RS	Developer	10.50.1617.0
Installation Progress	<shared components=""></shared>		SSMS, Adv_SSMS, Conn, BC, SDK, IS		10.50.1617.0
Complete			< Back Next >	Cance	el Help

Figure 2.

2.1.2 Service account Setup

Specify the service accounts and	collation configuration.			
tup Support Rules tup Role ature Selection	Service Accounts Collation	for each SQL Server service.		
stallation Rules	Service	Account Name	Password	Startup Type
tance Configuration	SQL Server Agent	NT AUTHORITY NETWORK SERVICE		Manual
Space Requirements	SQL Server Database Engine	NT AUTHORITY WETWORK SERVICE		Automatic
ver Configuration	SQL Server Analysis Services	NT AUTHORITY WETWORK SERVICE		Automatic
abase Engine Configuration	SQL Server Reporting Services	NT AUTHORITY WETWORK SERVICE		Automatic
ysis Services Configuration	SQL Server Integration Services 11.0	NT AUTHORITY WETWORK SERVICE		Automatic
orting Services Configuration	SQL Server Distributed Replay Client	NT AUTHORITY NETWORK SERVICE		Manual
ibuted Replay Controller ibuted Replay Client	SQL Server Distributed Replay Controller	NT AUTHORITY NETWORK SERVICE		Manual
r Reporting	SQL Full-text Filter Daemon Launcher	NT AUTHORITY/LOCAL SERVICE		Manual
allation Configuration Rules	SQL Server Browser	NT AUTHORITY\LOCALSERVICE		Automatic
ady to Install taliation Progress mplete				

Figure 3.



2.1.3 Database Engine Configuration and Authentication Mode

🚼 SQL Server 2012 Setup		
Database Engine Confi Specify Database Engine authenti	iguration sication security mode, administrators and data directories.	
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Analysis Services Configuration Distributed Replay Controller Distributed Replay Controller Distributed Replay Client Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Directories FILESTREAM Specify the authentication mode and administrators for the Database Engine. Authentication Mode • • Windows authentication mode • • Mixed Mode (SQL Server authentication and Windows authentication) Specify the password for the SQL Server system administrator (sa) account. Enter password: • Optimize administrators Specify SQL Server administrators BUILTINIAdministrators (Administrators) Add Current User Add Current User	SQL Server administrators have unrestricted access to the Database Engine.
		<u>B</u> ack <u>N</u> ext > Cancel Help

Figure 4.

2.1.4 Analysis Services Configuration

🚼 SQL Server 2012 Setup		×
Analysis Services Conf Specify Analysis Services server	figuration modes, administrators, and data directories.	
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Analysis Services Configuration Distributed Replay Controller Distributed Replay Client Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Directories Server Mode: Multidimensional and Data Mining Mode Tabular Mode Specify which users have administrative permissions for Analysis Services. BUILTIN Administrators (Administrators)	Analysis Services administrators have unrestricted access to Analysis Services.
	Add <u>C</u> urrent User <u>A</u> dd <u>R</u> emove	
		< Back Next > Cancel Help

Figure 5.



2.1.5 Reporting Services Options

🍀 SQL Server 2012 Setup	×D.	
Reporting Services Configuration Specify the Reporting Services configuration mode.		
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Analysis Services Configuration Reporting Services Configuration Reporting Services Configuration Distributed Replay Controller Distributed Replay Controller Distributed Replay Clent Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Reporting Services Native Mode Installs and configures the report server in native mode. The report server is operational after setup completes. Installs and configures the report server files. After installation, use Reporting Services Configuration Manager to configure the report server for native mode. Reporting Services SharePoint Integrated Mode Installs the report server files. After installation use SharePoint Central Administration to complete the configuration. Verify the SQL Server Reporting Services service is started and create at least one SQL Server Reporting Services service application. For more information, click Help.	
	< Back Next > Cancel Help	

Figure 6.

2.1.6 Remaining 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 as a default the Folder named 'Innovator Reports'.

In this section, we configure 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 has been integrated into the Aras Innovator client via an Innovator Report that opens the Report Manager page.

Open your browser with the URL http://localhost:8080/Reports (on a default install).

If your installation is not default, open the Reporting Services Configuration Manger to verify the URL.

Reporting Services Configuration Man	ager: ARAS00208\MSSQLSERVER2012	
SQL Server 2012 Reporting Services Configu	uration Manager	
말 Connect	Report Manager URL	
ARAS00208\MSSQLSERVER2012		
💐 Service Account	Configure a URL to access Report Manager. Click Advanced to define multiple URLs, or to specify additional parameters on the URL.	
i Web Service URL	Report Manager Site Identification	
🔰 Database	Virtual Directory: Reports_MSSQLSERVER2012 URLs: http://ARAS00208:80/Reports_MSSQLSERVER2012 Advanced	
Report Manager URL		
🚖 E-mail Settings		
Kecution Account		
Recryption Keys		
ے Scale-out Deployment		
	Results	
	Creating virtual directory Reports_MSSQLSERVER2012	
	Reserving url http://+:80	
	The url was successfully reserved.	
	<u>_</u>	рру
0	Арріу	<u>E</u> xit

Figure 7.



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

C Home - Report Manager - Windows Internet Explorer		
() + () http://aras00208/Reports_MSSQLSER/ER2012/Pages/Folder.aspx	💌 🐓 🗶 Google	P •
🚖 🐼 🏉 Home - Report Manager	💁 • 🗟 × 🖶 •	🕑 Page 🔹 🌀 Tgols 🔹 🍟
	Home My Subscriptions	Site Settings Help 🗡
SQL Server Reporting Services		
Home	Search	2
New Folder 😟 New Data Source 👘 🍇 Report Builder 👘 🕍 Folder Settings 👘 🕆 Upload File		Details View
There are no items in Home. Click Help for more information about this page.		



2. Click 'New Folder'.

3. Enter 'Innovator Reports' for the name and click OK.

🖉 New Folder - Report Manager - Windows Internet I	xplorer		_ [0] 3
🕒 🕢 🔹 🙋 http://www.00208/Reports_MSSQLSERVER.	2012;Pages;FolderProperties.aspx?CreateNew=True&ItemPath	=%2files =Folder&Redrect.H=http%3a%2 💌 😚 🕺 Coogle	p.
🖉 🐼 🧝 New Folder - Report Manager		· · · · · · · · · · · · · · · · ·	Bage + 🕜 Tgols +
Home	- Asteria	Home My Subscriptions Site	e Settings Help
SQL Server Reporting Services New Folder		Search	٩
Create a new folder in Home.			
Name Innovator Reports Description			
	1		
Fide in tile view	2		
OK Cancel			

- Figure 9.
- 4. If you use a folder named something other than 'Innovator Reports', you need to change the 'Report Server Folder' variable in the database as well in Administration\Variables in the TOC. The default value for this is 'Innovator Reports' but can be customized for each database. For the purposes of these instructions, we assume the default value is used.

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.



□ Innovator Reports - SQL × +							×	
\leftarrow \rightarrow \circlearrowright 192.168.169.38/reports	_mssql2016/browse/Innovat	or%20Reports		☆	=	2	٩	•••
SQL Server Reporting Services					,	?	Repor	ting
★ Favorites Browse	+	↑ □	Y	Searc	h	, ,		Q
Innovator Reports	Folder							
Home > Innovator Reports	KPI							
	Mobile Report							
	Paginated Report	<i>ı</i> .						
	Dataset							
	Data Source							

Figure 10.

The New Data Source dialog appears.



SQL Server Repo	orting Services	ŝ	$\overline{\uparrow}$?	Reporting
★ Favorites 🛛 Browse				Rectang	ular Snip
린 New data sou	rce				
Home > Innovator Reports	s > New data source				
	Properties				Î
	Name				
	Description				_
	Description				
	🗌 Hide this item 🗹 Enable this data source				
	Connection				
	Type Microsoft SQL Server				U.S.
	WICHOSOTE SELVER				_
	Connection string Learn more				
	Credentials				
	Log into the data source				
	As the user viewing the report				
	 Your organization must have specific securit option to work. Learn more 	y infrastru	icture in p	lace for th	is

Figure 11.

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=NuCourceNuCourceNuCourceNuCourceNucource

- 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.

©2020 Aras Corporation All Copyrights Reserved.



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. The same Web Service is used to request Reports and administer the Report Server. The Web Service is by default configured to use Windows Authentication. You can't simply open the 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 opens requesting the user's login credentials the first time they request a Report each time the browser is opened again. When requesting the Report from within Aras Innovator this would not be desirable. This also means the user must have a domain or local User Account on the server and that becomes an issue for not 100% Microsoft shops with Intranet only Aras Innovator.

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 view the authentication dialog as normal and unless the IT department shares the credentials, the users can only view the Reports through Aras Innovator.

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

3.3.1 Add 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 you can 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 Add the Reporting Role

The Reporting User Account must next be mapped as a Role in the Reporting Services enabling this account Browser privileges.



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

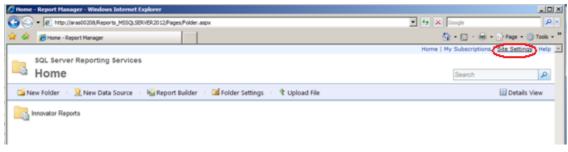


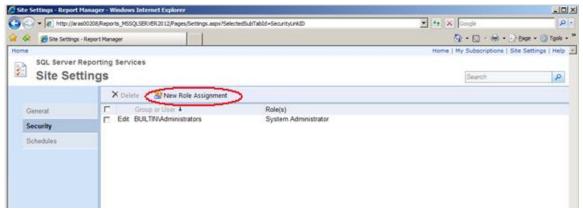
Figure 12.

2. Click on the 'Security' tab.

Site Settings - Report	Hanager - Windows Internet Explorer		the second s	
🕒 🕑 🕶 🔊 http://ara	s00208/Reports_MSSQLSERVER2012/Pages/Settings.aspv?Sek	sctedSubTabld=SecurityLinkID	* * X Google	P -
🖌 🔗 Site Settings	- Report Manager		<u>Ø</u> • □ · ₩ • ∅	Bage + 🕥 Tgols + **
iome			Home My Subscriptions 56	e Settings Help 🗻
Site Set	Reporting Services		Search	P
	X Delete 1 2 New Role Assignment			
General Security Schedules	C Group or User 4	Role(s) System Administrator		



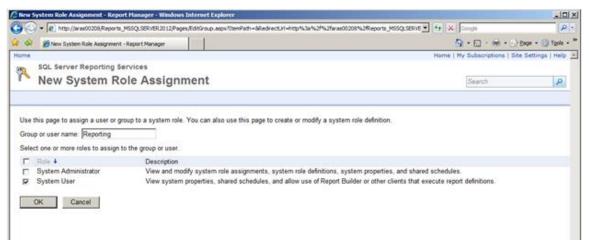
3. Click 'New Role Assignments' to map the Reporting User Account as a Reporting Services Role.







4. Enter the User Account name Reporting and check the '**System User**' checkbox and click '**OK**' to create the new Role.





5. Next we need to add the new Reporting Role to the '**Innovator Reports**' folder's security. Click on the '**Home**' link in the upper right hand corner on the page, then on '**Details View**' and select the Edit icon for the Innovator folder.

	- 0 -
💌 🐮 💥 Google	8.
9.0.4.0	Page - 🔘 Toolo - "
Home Ny Subscriptione 5	ite Settings Help
Search	٩
	Details View
	Details View)
	Norme Ny Subscriptone 5



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

Prome - Report Hanager - Windows Internet To		Mode-Detail			• ++ × Google		0)) ()
a 🖉 👩 Hone - Report Manager						(m) + () Page - () Toolo	
SQL Server Reporting Services					Home Ny Subscrip	ptione Bits Settings Hel	
🗙 Delete 👘 💣 Move 👘 🚞 New Folder	New Data Source	Report Builder	Selder Settings	t Upload File		III Tile View	
Type Name 4 Solution Reports		Description	Pode Setting	Last Rur		Modified Dy ARAS-CORP/Administrate	DF





7. Click 'New Role Assignment'.

- Report Hanager - W	indows Internet Explorer		Rie
GO · [#] Maslie	• (#) http://www.cli.208.Reports_MSSQ.SERVER.2012/Pages.Folder_aspx?temPath=%2566efectedTabld=PropertiesTab		💌 🕫 🛪 Tooge
🐼 🖉 - Report Nanager		💁 • 🔂 - 🖮 • 🕑 Page • 🔘 Tools	
SQL Server	Reporting Services		Nome My Subscriptions Site Settings Help
Home	50 80 DOVE 12 19 10 11 10		Search P
	X Defete / 20	ew Role Assignment	
Security	Ede BUILTINA		



8. Enter the Reporting Role and 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 the Reporting Services is installed you need to configure Visual Studio to create a Project to hold the Reports. Plus 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 as shown here to ensure that the Aras Innovator integration with the Reporting Services works correctly.

4.1 Create a New Report Project

Start **SQL Server Data Tools** and create a new project named '**Innovator Reports**'. This becomes the Reporting Services Folder to hold the Reports for Aras Innovator.



Figure 20.



New Project				? ×
Recent Templates	NET Framework 4 Sort by: Default	III III	Search Installed Templates	P
Installed Templates Business Intelligence Analysis Services Integration Services SQL Server Other Project Types Chline Templates	Analysis Services Multidimensional and Data Mining Project Integration Services Project Report Server Project Wizard Report Server Project Analysis Services Tabular Project	_	Type: Business Intelligence Create an empty Report Server project.	
	r Reports administrator (documents) visual studio 2010 (projects ir Reports	×	Browse	
			OK Cance	1

Figure 21.

4.2 Configure Project Properties

Open the 'Solutions Explorer' panel from the menu View --> Solutions Explorer if it is not already opened.

Right-click the 'Innovator Reports' folder and select the Properties context menu choice.

On the Properties dialog set the TargetServerURI field to the URL of the Report Server. For example, <u>http://localhost:8080/ReportServer</u> where the actual name of the server host name is entered in place of localhost.

Also set the **OverwriteDateSources** flag to True.



 Configuration Properties 	E Build	
General	ErrorLevel	2
Sector Manufacture	OutputPath	bin\Debug
	E Debug	Unitorog
	Startitem	
	Deployment	
	Overwrite Datasets	False
	Overwrite Data Sources	(True)
	TargetDatasetFolder	Datasets
	TargetDataSourceFolder	Data Sources
	TargetReportFolder	Innovator Reports
	TargetReportPartFolder	Report Parts
	TargetServerURL	http://localhost/ReportServer_MS
	Target ServerVersion	SQL Server 2008 R2 or later
		native mode, enter the path to the report server d, for example, http:// <servername>/reportserver. F</servername>

Figure 22.

4.3 Add New Shared Data Source

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

4.3.1 Connection Properties

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



Shared Data Source Pro	operties	×
General Credentials	Change name, type, and connection options.	
	Name:	
	Innovator	
	Type:	
	Microsoft SQL Server	•
	Connection string:	
	Click here to type or paste a connection string	Edit
Help	0	K Cancel

Figure 23.

Connection Properties	? ×
Data source:	
Microsoft SQL Server (SqlClient)	Change
Server name:	
ARAS00208\MSSQLSERVER2012	<u>R</u> efresh
Log on to the server	
O Use Windows Authentication	
 Use SQL Server Authentication 	
Username: innovator_regular	
Password:	
Save my password	
Connect to a database	
Select or enter a database name:	
Solutions5722S93	
C Attach a database file:	Browse
Logical name:	Diowse
,	
	Ad <u>v</u> anced
Test Connection OK	Cancel

Figure 24.



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 above. You can rename this if you want. Finally, you need to deploy this new Shared Data Source.

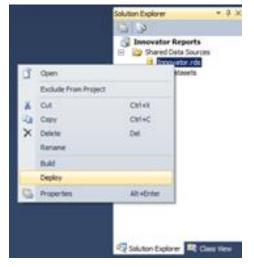


Figure 25.



5 Creating your First Report

The following illustrates using the Report Wizard to create a new Report. For this Report we create a simple User Directory Report showing the Users First Name, Last Name, Email, Phone Number, and Company Name. The following is a screen shot of the Report that we will be creating:

5.1 Start a New Report using the Wizard

From the 'Solution Explorer' panel right mouse click on the 'Reports' folder and select the context menu choice 'Add New Report'.



Figure 26.



5.2 Select the Data Source

You can create a unique Data Source for this Report but it typical that you use the default Shared Data Source that you created.

🧟 Report Wizard		
Select the Data Source Select a data source from which to obtain data for this report or source.	create a new data	
<u>S</u> hared data source		
Innovator		
O New data source		
N <u>a</u> me:		
DataSource1		
<u>Type:</u>		
Microsoft SQL Server		
Connection string:		
	E <u>d</u> it	
	Credentials	1
Make this a shared data source		
Help < Back Next >	Einish >> Cano	

Figure 27.



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.

🧟 Report Wizard	<u>- 🗆 ×</u>
Design the Query Specify a query to execute to get the data for the report.	
Use a query builder to design your query.	
Q <u>u</u> ery Builder	
Query string: SELECT FIRST_NAME, LAST_NAME, EMAIL, TELEPHONE FROM [USER] ORDER BY LAST_NAME]	
<u>H</u> elp < <u>B</u> ack <u>N</u> ext > <u>Finish >></u>	Cancel

Figure 28.

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 the **Tabular** type:

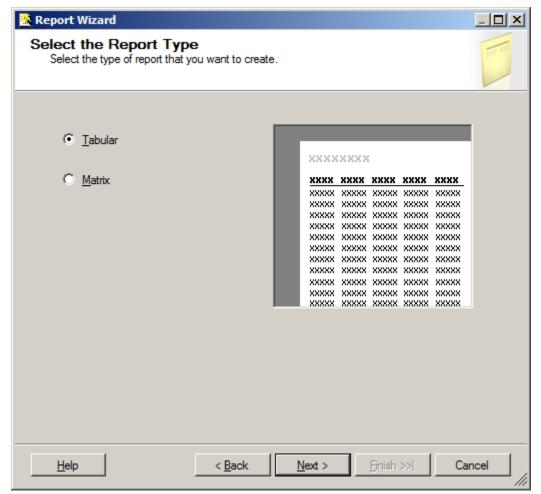


Figure 29.



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.

🧟 Report Wizard			_ D ×
Design the Tab Choose how to gro	le up the data in the table.		
<u>A</u> vailable fields:	Page	Displayed fields:	1
	<u>P</u> age>		XXXX
	<u>G</u> roup>		***** ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** **** **** **** **** **** **** **** **** **** **** **** ****
	<u>D</u> etails>	FIRST_NAME LAST_NAME EMAIL TELEPHONE	
	< R <u>e</u> move		
Help	< <u>B</u> ack	<u>N</u> ext >	<u>Finish >> </u> Cancel

Figure 30.



5.6 Choose the Table Style

Select the style for the table for the Report. This example simply uses the default **Bold** style.

late orest	XXXX	xx			
orporate old	XX XX	XXXX	XXXX	XXXX	XXXX
cean	XX XX	XXXX	XXXX	XXXX	****
	XXXX	XXXX	XXXX	XXXX	XXXX
eneric	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX
	XXXX	XXXX	XXXX	XXXX	XXXX

Figure 31.



5.7 Name the Report

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

Note: The **Report Name** must be chosen to be meaningful and should be the same name you set 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	1
Connection string:	
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 Can	

Figure 32.



5.8 Wizard Report Results

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

User F	Report		
FIRST NAME	LAST NAME	EMAIL	TELEPHONE
Innovator	Admin		
Vault	Admin		
Super	User		

Figure 33.

Once the Report is opened in the Layout Tab you can make further changes as required. In this example, we use camel case for 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 three Tabs:

- **Data**: For editing the query for the Report. 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. From the 'Solution Explorer' panel right mouse click on the 'User Directory' Report item and select the context menu choice Deploy. Watch for error messages in the output window at the bottom of the frame.

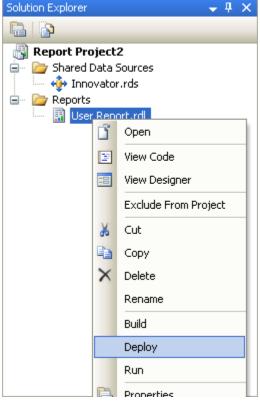


Figure 34.

5.11 Confirm Deployment

To confirm the new report has been deployed, open IE Browser and navigate to <u>http://localhost:8080/Reports</u>. 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 and after it opens, run the Report.

Note: The URL for directly testing this report outside of Aras Innovator would look like this: <u>http://localhost:8080/ReportServer?/Innovator Reports/User Directory</u>.



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 available always.
- 6. Select the Report Location, which in this case is 'Service'.
- 7. Select the Report Target, which in the case we want 'Window'.
- 8. Because this sample Report is of type ItemType there is no Report query Value.

User Directory x			
User Directory	<u>I</u>		
🖍 Edit	• ••• · · · · · · · · · · · · · · · · ·		
^ Report			
Report Stylesheet Name: User Directory Labet:	Type Location: Target Generic Service Vilindow V	Description: Method	
Report Query			
			 A

Figure 35.

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

 Test the Report by clicking on the Reports main menu bar choice and you should see the new 'User Report' choice. Click on the menu choice and you should see a new window open with the 'User Directory' Report.



5.12.2 Passing Named Parameters to the ReportServer

As step 4 describes in the section 3.1, Report Server Variable, 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 Aras 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 following parameter as the report_query value for the 'User Directory' Report: rs:Format=PDF

User Directory ×
III User Directory
<mark>∕ Edit</mark> ☆
^ Report
Report Stylesheet
Name: Type Location: Target: Description: Method User Directory Generic * Service * One Window * One Window * Image: Compare the service * Method
Label:
Report Query rs:Format=PDF
rs:Format=PUF

Figure 36.

Note: If you need to include more than one parameter for the report_query value, you need to use the Entity & amp; rather than the actual & symbol to delimit the parameters. Recall 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 and so the special symbols like <, >, and & need to be protected in XML need to be entered as Entities &It; > and & amp; 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. You 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 Zoom

Control the zoom: rc:Zoom=100 rc:Zoom=% zoom as integer rc:Zoom=Page Width rc:Zoom=Whole Page

6.4 Reports Folder

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

irs:Folder=<mark>Your Folder Name</mark>



6.5 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 the Aras Innovator client via an Innovator Report that opens the Report Manager page (see section 2 Configuring Aras Innovator for more information about this Report Item).

Reports that are created and tested on the development machine can be moved 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. Click Reports on the main menu and the 'Report Manager' choice.
- 3. The Report Manager page opens in a new window as shown below:

You may need to click 'Show Details'.

🦲 Ho	me -	Report Manager - Wi	ndows Internet Explorer							- 🗆 ×
0	D	http://aras00208	Reports_MSSQLSERVER201	2/Pages/Folder.aspx?ViewMc	P - + × 🧉	Home - Report Manager	×		G) 🖈 🕸
								Home My Subsc	riptions Site Settings	Help 👱
		SQL Server Repo	ting Services							
_	à	Home						Searc	h	2
×	Del	lete 🛛 💣 Move 🕴	🞬 New Folder 🕴 🧕	New Data Source	🗳 Report Builder	🞽 Folder Settings	🕆 Upload	File	📰 Tile V	iew
	Туре	e Name 🕹			Description		Last Rur	n Modified Date	Modified By	
		Data Sources						4/27/2012 5:41 PM	ARAS\Administrator	
		Innovator Reports						4/27/2012 6:33 PM	ARAS\Administrator	
	<u>,</u>	Innovator						4/26/2012 5:49 PM	ARAS\Administrator	

Figure 37.

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



7.2 Export the RDL

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

Select '**Download**' from the Report Context menu. This opens a dialog asking for confirmation that you want to save the RDL file.

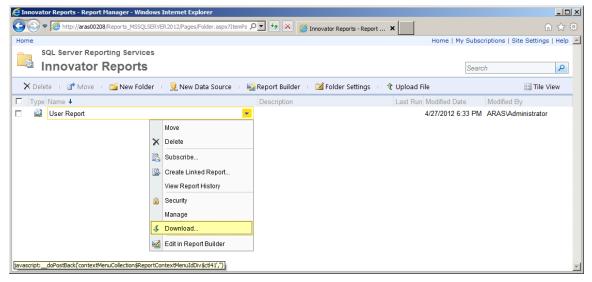


Figure 38.

7.3 Import the RDL

Log into the target Aras Innovator Server:

- 1. In the TOC, navigate to Administration --> Reports.
- 2. Click Reports on the main menu and the 'Report Manager' choice.
- 3. The Report Manager page opens in a new window as shown below:

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

🕒 🕙 🗢 🎑 http://aras00208/Reports_MSSQLSERVER201	12/Pages/Folder.aspx?ViewMk 🔎 🗹 🗲 🧭 Home - Report M	lanager 🗙		☆ 🖒
		Ho	me My Subscriptions Site	e Settings Help
SQL Server Reporting Services				
📑 Home			Search	2
🗙 Delete 📋 💣 Move 📋 🚰 New Folder 🕴 💆	l New Data Source 🔰 🝇 Report Builder 🔰 🗹 Folder So	ettings 🛛 🥀 Upload File		📰 Tile View
	Description	Last Run Modi	fied Date Modified By	
	Description		fied Date Modified By 2012 5:41 PM ARAS\Adm	
□ Type Name ↓	Description	4/27/		inistrator

Figure 39.

Click on the '**Innovator Reports**' Folder and you see a list of Reports and Shared Data Sources. Click '**Upload File**' in the middle of the screen.



^{©2020} Aras Corporation All Copyrights Reserved.

Conservator Reports - Report Hanager - Windows Internet Explorer Image: Participation of the state of the stateo	t x	්ටය බ හ ම
SQL Server Reporting Services Innovator Reports		My Subscriptions Site Settings (Help. 2 Startph
🗙 Dalete 📑 More 🚘 New Folder 😟 New Data Source : 🍇 Report Builder : 🖼 Folder Settings	숙 Upload File	🔡 Tile View
IC: III User Report	4/27/20	Date South And State De State Stat

This opens the Upload File page.

	_10
SQL Server Reporting Services Upload File Search Upload a report (.rdl), model (.smdl), shared dataset (.rsd), report part (.rsc), or other resource into Innovator Reports. File to upload: Name: New Item C Overwrite item if it exists	1 1
Upload File Upload File Upload a report (.rdl), model (.smdl), shared dataset (.rsd), report part (.rsc), or other resource into Innovator Reports. File to upload: Name: Name: New Item Coverwrite item if it exists	ngs į Help
Upload a report (.rdl), model (.smdl), shared dataset (.rsd), report part (.rsc), or other resource into Innovator Reports. File to upload: Browse. Name: New Item C Overwrite item if it exists	
File to upload: Browse Name: New Item C Overwrite item if it exists	P
Name: New Item	
C Overwrite item if it exists	
OK. Cancel	

Click 'Browse...', which opens a File Selection dialog for you to select the RDL file to upload.

Select the RDL file and click '**Open**'. This inserts the file name in the File to upload field and also set the Name field to the name of the RDL file selected.

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

The Data Source for the Report may need to be changed 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.

🜔 User Report - Repor	: Manager - Windows Internet Explorer
🔆 🕑 🗢 🎑 http://a	ras00208/Reports_MSSQLSERVE 🔎 🖌 🎸 User Report - Report Manager 🗙 🕼 🏠 🄅
Home > Innovator Re	ports Home My Subscriptions Site Settings Help 📐
SQL Server User R	Reporting Services eport Search
	🗙 Delete 🔰 🖆 Move 👘 🔜 Create Linked Report 👘 🐠 Download 👘 🏌 Replace
Properties	
Data Sources	Modified Date: 4/27/2012 6:33 PM Modified By: ARAS\Administrator Creation Date: 4/27/2012 6:33 PM
Subscriptions	Created By: ARAS\Administrator Size: 17 KB
Processing Option	
Cache Refresh C	ptions Name: User Report
Report History	Description:
Snapshot Option	
Security	☐ Hide in tile view
	Apply Create a linked report when you want to use different security or parameters with the report.

Figure 40.

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



	Reports_MSSQLSERVER2012/Par P 🗹 🚱 🗶 🥥 User Report - Report Manager 🗙	ŝ
Home > Innovator Reports	Home My Subscriptions Site Settings Help	
SQL Server Report	-	
Properties	Innovator	
Data Sources	A shared data source	
Subscriptions	/Data Sources/Innovator Browse	
Processing Options	C A custom data source	
Cache Refresh Options	Data source type: Microsoft SQL Server	
Report History	Connection string:	
Snapshot Options	v	
Security	Connect using: © Credentials supplied by the user running the report	
	Display the following text to prompt user for a user name and password:	
	Type or enter a user name and password to access the data source	
	Use as Windows credentials when connecting to the data source	
	Credentials stored securely in the report server	
	User name:	
	Password:	
	Use as Windows credentials when connecting to the data source	
	\blacksquare Impersonate the authenticated user after a connection has been made to the data source	
	Windows integrated security	
	Credentials are not required	
	Test Connection	
	Apply	-

Figure 41.

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



	08/Reports_MSSQLSERVER2C 🔎 🖌 🏉 User Report - Report Manager 🗙 👘 🚖 🔅
Home > Innovator Reports	Home My Subscriptions Site Settings Help 📐
SQL Server Rep	
Properties	Browse folders to select a shared data source to use with this item.
Data Sources	
Subscriptions	Location: //Data Sources/Innovator
Processing Options	
Cache Refresh Options	Innovator
Report History	
Snapshot Options	OK Cancel
Security	

Figure 42.



8 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. (Refer to *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}). The time zone should be specified according to the registry key name of the time zone desired. (Refer to *Aras Innovator - Configuring Internationalization*) To use the DEFAULT parameter for {Time Zone}, it is required that a value be set for CorporateTimeZone.

Example:

update innovator.Document

```
set effective date = '1/1/2007 00:00:00.00'
```

Would be written as

update innovator.Document

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

Or

update innovator.Document

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)
```

```
©2020 Aras Corporation All Copyrights Reserved.
```

