**Readme for Adventure Works DW 2014 Multidimensional Databases Project**

This sample contains projects used to deploy an Analysis Services multidimensional database based on Adventure Works sample data. There are two projects in the sample: one for the enterprise edition and one for the standard edition of SQL Server. If you are using the Business Intelligence edition of SQL Server, use the enterprise project.

**Requirements**

Requirements to install and deploy the Adventure Works DW 2014 Multidimensional sample database and project:

1. SQL Server 2014 Analysis Services, deployed in multidimensional mode. For more information on requirements see [Hardware and Software Requirements for Installing SQL Server 2014](http://msdn.microsoft.com/en-us/library/ms143506.aspx).
2. SQL Server Data Tools, a feature installed when installing SQL Server, used to create Analysis Services projects
3. Read access to a copy of the [AdventureWorksDW2014](https://msftdbprodsamples.codeplex.com/downloads/get/880664) database

**Demonstrates**

Analysis Services Multidimensional capabilities.

**Install the samples**

1. Download the "[Adventure Works Multidimensional Models SQL Server 2014](https://msftdbprodsamples.codeplex.com/downloads/get/882336)" from Codeplex [http://social.technet.microsoft.com/wiki/cfs-file.ashx/__key/communityserver-components-sitefiles/10_5F00_external.png](http://go.microsoft.com/fwlink/p/?LinkID=221866).
2. Unzip the download folder. Note the location where the file was saved.

**Test and validate the samples**

1. Verify read access to the relational data source AdventureWorksDW2014.
   1. Open SQL Server Management Studio and connect to the **Database Engine** instance where the AdventureWorksDW2014 is located.
   2. Expand the **Databases** folder.
   3. Locate the **AdventureWorksDW2014** database.

**Note:** If the database is not visible try refreshing the database node. If the database is still not available check that the database was installed and that appropriate permissions exist on the database instance.

* 1. Expand the **AdventureWorksDW2014** database object and expand the **Tables** folder.
  2. Choose any table, right click on it, and click on **Select Top 1000 rows**.
  3. If the select statement successfully returns rows then the privileges needed to read data from the data source are appropriately set.

1. Depending on the edition of SQL Server that is installed, open the **Standard** or **Enterprise** folder. If you are using the Business Intelligence, Developer or Evaluation editions choose the **Enterprise** project.

**Note**: Admin permissions on the SSAS multidimensional instance are needed to run this solution. See [Grant Server Administrator Permissions (Analysis Services)](http://msdn.microsoft.com/en-us/library/ms174561.aspx) for more information.

1. Double click the solution file **AWDW2014Multidimensional-EE.sln** to open the solution in SQL Server Data Tools.

**Note:** If SQL Server Data Tools does not open then the feature was not correctly installed. Go over the setup process and add the SQL Server Data Tools feature to your installation.

1. In **Solution Explorer,** locate the **Data Source** folder. Right click the **Adventure Works2014.ds** data source and from the context menu select **Open**.
2. In the connection string area click '**Edit**'. The connection manager window will open.
   1. Verify the **server name** points to the server and instance where *AdventureWorksDW2014* database is located.
   2. In the **log on to the server** area verify that the credentials are correct or update them as necessary.
   3. Verify **connect to a database** points to *AdventureWorksDW2014*.
   4. Click on **Test Connection**, and the connection should succeed
3. In the connection manager window select the **Impersonation Information** tab

**Note:** If the service account does not have sufficient privileges, then choose another option. See [Set Impersonation Options (SSAS - Multidimensional)](http://msdn.microsoft.com/en-us/library/ms187597.aspx) for more information.

1. Right click the project object and select **Properties**.
2. In the navigation tree on the left pane select **Deployment** and verify the **Server** property is set to the Analysis Services Multidimensional instance where you have administrator privileges. Click **OK** to save changes or **Cancel** to exit without changes.
3. Right click the project object again and select **Show Deployment Progress**. A Deployment Progress window will open.
4. Right click the project object again and select **Deploy**.
5. Watch the deployment progress until it comes to a successful end.

**To test the deployed instance of the sample model:**

1. Open SQL Server Management Studio and connect to the Analysis Services Multidimensional instance where you deployed the database.
2. Expand the **Databases** folder and locate **AdventureWorksDW2014Multidimensional-EE** or the **AdventureWorksDW2014Multidimensional-SE**.
3. Expand the cubes folder. Right click on the Adventure Works cube, hover over **New Query** and select **MDX**.
   1. Verify that Adventure Works is the selected cube in the query window.
   2. In the query window paste the following MDX expression:

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product].[Product Categories].[Category].members on columns*

*from [Adventure Works]*

*where [Measures].[Sales Amount]*

* 1. Click the **Execute** button and results should appear after a moment.

**Readme for Adventure Works DW 2014 Multidimensional Database Backups**

This sample contains backup files used to deploy an Analysis Services multidimensional database based on Adventure Works sample data. There are two projects in the sample. One for the enterprise edition and one for the standard edition of SQL Server. If you are using the Business Intelligence edition of SQL Server, use the enterprise project.

**Install the samples**

1. Download the "[Adventure Works Multidimensional Model SQL 2014 Full Database Backups](https://msftdbprodsamples.codeplex.com/downloads/get/882334)”.
2. From File Download, click **Save.**
3. **Unzip the folder and extract** the .abf file to a location that is available to the database instance.

**Note:** The default 64-bit path is C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup. Use C:\Program Files (x86)\... for 32-bit SQL Server 2014

1. From SQL Server Management Studio connect to the 2014 Analysis Services Multidimensional instance.
2. With the instance selected, in the **Standard** toolbar click the **New Query** button.
3. Execute the following code in the query window:

**Note:** The file paths in the scripts are the default paths and database names. The paths and database names may need to be updated to match your environment.

**Enterprise Edition:**

<Restore xmlns="http://schemas.microsoft.com/analysisservices/2003/engine">

<File>C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup\AdventureWorksDW2014Multidimensional-EE.abf</File>

<DatabaseName> AdventureWorksDW2014Multidimensional-EE</DatabaseName>

<AllowOverwrite>true</AllowOverwrite>

<DbStorageLocation xmlns="http://schemas.microsoft.com/analysisservices/2008/engine/100/100">C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Data\</DbStorageLocation>

</Restore>

**Standard Edition:**

<Restore xmlns="http://schemas.microsoft.com/analysisservices/2003/engine">

<File>C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup\AdventureWorksDW2014Multidimensional-SE.abf</File>

<DatabaseName> AdventureWorksDW2014Multidimensional-SE</DatabaseName>

<AllowOverwrite>true</AllowOverwrite>

<DbStorageLocation xmlns="http://schemas.microsoft.com/analysisservices/2008/engine/100/100">C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Data\</DbStorageLocation>

</Restore>

**To test the deployed instance of the sample model:**

1. Open SQL Server Management Studio and connect to the Analysis Services Multidimensional instance where you deployed the database.
2. Expand the **Databases** folder and locate **AdventureWorksDW2014Multidimensional-EE** or the **AdventureWorksDW2014Multidimensional-SE**.
3. Expand the cubes folder. Right click on the Adventure Works cube, hover over **New Query** and select **MDX**.
   1. Verify that Adventure Works is the selected cube in the query window.
   2. In the query window paste the following MDX expression:

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product].[Product Categories].[Category].members on columns*

*from [Adventure Works]*

*where [Measures].[Sales Amount]*

* 1. Click the **Execute** button and results should appear after a moment.

**Readme for Adventure Works DW Tabular SQL 2014 and Adventure Works Internet Sales Tabular Model 2014**

This sample contains projects used to deploy an Analysis Services tabular database based on Adventure Works sample data. There are two projects in the sample. The Internet Sales Tabular Model 2014 uses a smaller subset of data than the Tabular SQL 2014 model.

**Note:** These samples are not meant to be used in DirectQuery mode. See [Formula Compatibility in Direct Query Mode](http://msdn.microsoft.com/en-us/library/hh213006.aspx) to obtain a deeper understanding of the differences about running a model in In-Memory mode versus DirectQuery mode.

**Requirements**

Requirements to install and deploy Adventure Works DW Tabular 2014 and the Adventure Works Internet Sales Tabular Model 2014 sample database and project:

1. SQL Server 2014 Analysis Services, deployed in tabular mode. For more information on requirements see [Hardware and Software Requirements for Installing SQL Server 2014](http://msdn.microsoft.com/en-us/library/ms143506.aspx)
2. SQL Server Data Tools, a feature to install when installing SQL Server, used to create Analysis Services projects.
3. Read access to an instance of AdventureWorksDW2014 database.

**Demonstrates**

Analysis Services Tabular capabilities.

**Install the samples**

1. Download the "[Adventure Works DW Tabular SQL 2014](https://msftdbprodsamples.codeplex.com/downloads/get/882331)” or “[Adventure Works Internet Sales Tabular Model 2014](https://msftdbprodsamples.codeplex.com/downloads/get/882333)" from Codeplex [http://social.technet.microsoft.com/wiki/cfs-file.ashx/__key/communityserver-components-sitefiles/10_5F00_external.png](http://go.microsoft.com/fwlink/p/?LinkID=221866).
2. Unzip the download folder. Note the location where the file was saved.
3. Verify read access to the relational data source AdventureWorksDW2014.
   1. Open SQL Server Management Studio and connect to the **Database Engine** instance where the AdventureWorksDW2014 is located.
   2. Expand the **Databases** folder.
   3. Locate the **AdventureWorksDW2014** database.

**Note:** If the database is not visible try refreshing the database node. If the database is still not available check that the database was installed and that appropriate permissions exist on the database instance.

* 1. Expand the **AdventureWorksDW2014** database object and expand the **Tables** folder.
  2. Select any table, right click on it and click on **Select Top 1000 rows**.

If the select statement successfully returns rows then the privileges needed to reload data are available.

1. Open the folder that contains the solution files.

**Note**: Admin permissions on the SSAS tabular instance are needed to run this solution. See [Grant Server Administrator Permissions (Analysis Services)](http://msdn.microsoft.com/en-us/library/ms174561.aspx) for more information.

1. Double click the solution file **AW Tabular Model SQL 2014.sln** or **AW Internet Sales Tabular Model 2014**.

**Note:** If SQL Server Data Tools does not open then the feature was not correctly installed. Go over the setup process and add the SQL Server Data Tools feature to your installation.

1. As the program opens the Tabular model designer window will appear. Enter your Tabular instance name and click **Test Connection.**

**Not**e: If you do not enter a valid connection the solution will fail to load.

1. Once the solution is open go to the **Solution Explorer** right click over the **Model.bim** file and select **Properties**. Verify the **Workspace Server** name matches the tabular instance name. For more information on the Workspace Database see [Workspace Database (SSAS Tabular)](http://msdn.microsoft.com/en-us/library/hh230969.aspx)
2. In the **Solution Explorer** pane, double click the **Model.bim** file.

**Note:** A warning dialog, titled Business Intelligence Semantic Model appears with the following message:

Opening this file in the BIM Designer causes a script to be executed on an Analysis Services server...

Click **Yes** to accept. Accepting sends the model to your workspace server, generates the model there and presents the model to you in SQL Server Data Tools. Wait a moment until the model appears in the window.

1. From the menu bar click on **Model** and select **Existing connections.**
2. Click on **Edit** and verify the data source information points the **AdventureWorksDW2014** database verified in step 1. Change if needed.
3. Click on **Test Connection** to verify all parameters are correct.
4. Click on the **Impersonation...** button and verify Service Account is selected.

**Note:** If the service account does not have sufficient privileges, then choose another option. See [Set Impersonation Options (SSAS - Multidimensional)](http://msdn.microsoft.com/en-us/library/ms187597.aspx) for more information

1. Click on **Save** and then **Close** in the next window to return to the model.
2. From the menu bar click on **Model**, hover over **Process** and select **Process All** from the context menu. Wait a moment until the model appears in the window.
3. From the menu bar click on **File** and select **Save All**.
4. In the **Solution Explorer** pane right click on **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014** project and select **Properties**.
5. Select **Deployment** from the left pane. Verify the **Server** name matches the tabular instance from step 2. Change the Server name if needed.
6. Click **OK** to close the properties window.
7. In the **Solution Explorer** pane right click on **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014** project and select **Deploy**. Wait a moment until the model is deployed.

**To test the deployed instance of the sample model:**

1. Open SQL Server Management Studio and connect to the Analysis Services Tabular instance where you deployed the database.
2. Expand the **Databases** folder and locate **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014**.

**Note:** There might be another database with a similar name that includes your username and a GUID which is your workspace database. You can identify workspace server and workspace database used by a model by checking the Workspace Database and Workspace Server properties of the .bim file in SQL Server Data Tools.

1. Right click on database hover over **New Query** and select **MDX**.
   1. Verify that **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014** is the selected database in the **Available Databases** drop down list box (use <CTRL><ALT><J> shortcut to locate the list).
   2. In the query window paste the following MDX expression:

**AW DW Tabular Model SQL 2014**:

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product Category].[Product Category Name].members on columns*

*from [Model]*

*where [Measures].[Total Sales]*

**AW DW Internet Sales Tabular Model 2014:**

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product Category].[Product Category Name].members on columns*

*from [Model]*

*where [Measures].[Internet Total Sales]*

* 1. Click the **Execute** button and results should appear after a moment.

**Readme for Adventure Works DW 2014 Tabular Database Backups**

This sample contains backup files used to deploy an Analysis Services tabular database based on Adventure Works sample data.

**Install the samples**

1. Download the "[Adventure Works Tabular Model SQL 2014 Backup](https://msftdbprodsamples.codeplex.com/downloads/get/882335)” or the “[Adventure Works Internet Sales Tabular Model 2014 Backup](https://msftdbprodsamples.codeplex.com/downloads/get/882332)”
2. From File Download, click **Save.**
3. **Unzip the folder and extract** the .abf file to a location that is available to the database instance.

**Note:** The default 64-bit path is C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup. Use C:\Program Files (x86)\... for 32-bit SQL Server 2014

1. From SQL Server Management Studio connect to the 2014 Analysis Services Tabular instance.
2. With the instance selected, in the **Standard** toolbar click the **New Query** button.
3. Execute the following code in the query window:

**Note:** The file paths in the scripts are the default paths and database names. The paths and database names may need to be updated to match your environment.

AW Tabular Model SQL 2014:

<Restore xmlns="http://schemas.microsoft.com/analysisservices/2003/engine">

<File>C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup\AW Tabular Model SQL 2014.abf</File>

<DatabaseName>AW Tabular Model SQL 2014</DatabaseName>

<AllowOverwrite>true</AllowOverwrite>

<DbStorageLocation xmlns="http://schemas.microsoft.com/analysisservices/2008/engine/100/100">C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Data\</DbStorageLocation>

</Restore>

AW Internet Sales Tabular Model 2014:

<Restore xmlns="http://schemas.microsoft.com/analysisservices/2003/engine">

<File>C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Backup\AW Internet Sales Tabular Model 2014.abf</File>

<DatabaseName>AW Internet Sales Tabular Model 2014</DatabaseName>

<AllowOverwrite>true</AllowOverwrite>

<DbStorageLocation xmlns="http://schemas.microsoft.com/analysisservices/2008/engine/100/100">C:\Program Files\Microsoft SQL Server\MSAS12.MSSQLSERVER\OLAP\Data\</DbStorageLocation>

</Restore>

**To test the deployed instance of the sample model:**

1. Open SQL Server Management Studio and connect to the Analysis Services Tabular instance where you deployed the database.
2. Expand the **Databases** folder and locate **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014**.

**Note:** There might be another database with a similar name that includes your username and a GUID which is your workspace database. You can identify workspace server and workspace database used by a model by checking the Workspace Database and Workspace Server properties of the .bim file in SQL Server Data Tools.

1. Right click on database hover over **New Query** and select **MDX**.
   1. Verify that **AW DW Tabular Model SQL 2014** or the **AW DW Internet Sales Tabular Model 2014** is the selected database in the **Available Databases** drop down list box (use <CTRL><ALT><J> shortcut to locate the list).
   2. In the query window paste the following MDX expression:

**AW DW Tabular Model SQL 2014**:

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product Category].[Product Category Name].members on columns*

*from [Model]*

*where [Measures].[Total Sales]*

**AW DW Internet Sales Tabular Model 2014:**

*Select Non Empty [Date].[Calendar Year].members on rows,*

*Non Empty [Product Category].[Product Category Name].members on columns*

*from [Model]*

*where [Measures].[Internet Total Sales]*

* 1. Click the **Execute** button and results should appear after a moment.