Creating an Analysis Services Project

To create a new Analysis Services project

1. Click **Start**, point to **All Programs**, click **SQL Server Data Tools**.
2.

   The Microsoft Visual Studio development environment opens.

3. On the Start page of Visual Studio, click **New Project**.
4. In the **New Project** dialog box, in the **Installed Templates** pane, expand **Business Intelligence**, and then select **Analysis Services**. Choose the **Analysis Services Multidimensional and Data Mining Project** template.
   Notice the default project name, location, and the default solution name are generated in the bottom of the dialog box. By default, a new directory is created for the solution.
5. Change the project Name to **IESN2016Project1**, which also changes the **Solution name** box, and then click **OK**.
6. Save AS c:\wrkfldr\biSql\ **IESN2016Project1 Not forget to copy it in one of your user spaces after having worked on it.**

Defining a Data Source

To define a new data source

- In Solution Explorer (on the right of the Microsoft Visual Studio window), right-click **Data Sources**, and then click **New Data Source**.
- On the **Welcome to the Data Source Wizard** page of the **Data Source Wizard**, click **Next** to open the **Select how to define the connection** page.
- On the **Select how to define the connection** page, you can define a data source based on a new connection, based on an existing connection, or based on a previously defined data source object. Define the data source based on a new connection. Verify that **Create a data source based on an existing or new connection** is selected, and then click **New**.
- In the **Connection Manager** dialog box, you define connection properties for the data source. In the **Provider** list box, verify that **Native OLE DB\SQL Server Native Client 11.0** is selected.
- In the **Server name** text box, type **localhost**.

  To connect to a named instance on your local computer, type **localhost**\.nom de l'instance=?

  Use Sql Authentication Login ***sa*** PW ***pwSQLig32016***

Select or enter a database name list, select **AdventureWorksDW2014**.

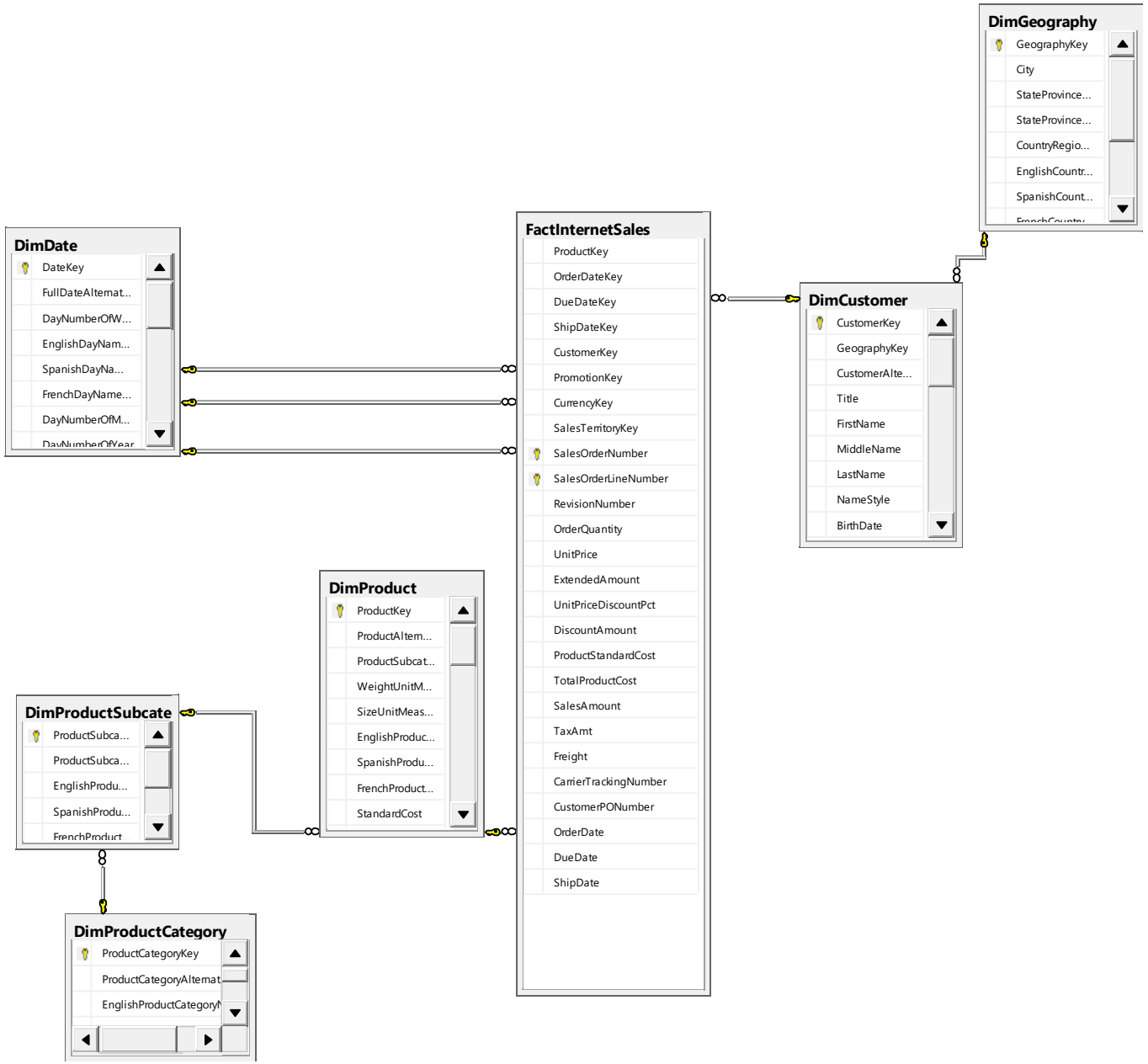
- Click **Test Connection** to test the connection to the database.
- Click **OK**, and then click **Next**.
- On the **Impersonation Information** page of the wizard, you define the security credentials for Analysis Services to use to connect to the data source. Impersonation affects the Windows account used to connect to the data source when Windows Authentication is selected. Analysis Services does not support impersonation for processing OLAP objects. Select **Use the service account**, and then click **Next**.
- On the **Completing the Wizard** page, accept the default name, **Adventure Works DW 2014**, and then click **Finish** to create the new data source.

Defining a Data Source View

To define a new data source view

1. In Solution Explorer (on the right of the Microsoft Visual Studio window), right-click **Data Source Views**, and then click **New Data Source View**.
2. On the **Welcome to the Data Source View Wizard** page, click **Next**. The **Select a Data Source** page appears.
3. Under **Relational data sources**, the **Adventure Works DW 2014** data source is selected. Click **Next**.

4. On the **Select Tables and Views** page, select tables and views from the list of objects that are available from the selected data source. You can filter this list to help you select tables and views.
5. In the **Available objects** list, select the tables corresponding to the diagram at the end of this Document. You can select multiple tables by clicking each while holding down the CTRL key:
    - **FactInternetSales (dbo), DimDate (dbo), …**


DimGeography
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SpanishCount...
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DayNumberOfW...
EnglishDayNam...
SpanishDayNa...
FrenchDayName...
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FactInternetSales
ProductKey
OrderDateKey
DueDateKey
ShipDateKey
CustomerKey
PromotionKey
CurrencyKey
SalesTerritoryKey
SalesOrderNumber
SalesOrderLineNumber
RevisionNumber
OrderQuantity
UnitPrice
ExtendedAmount
UnitPriceDiscountPct
DiscountAmount
ProductStandardCost
TotalProductCost
SalesAmount
TaxAmt
Freight
CarrierTrackingNumber
CustomerPONumber
OrderDate
DueDate
ShipDate
DimCustomer
CustomerKey
GeographyKey
CustomerAlte...
Title
FirstName
MiddleName
LastName
NameStyle
BirthDate
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ProductAltern...
ProductSubcat...
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FrenchProduct...
StandardCost
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DimProductCategory
ProductCategoryKey
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6. Click > to add the selected tables to the **Included objects** list.
7. Click **Next.**
8. In the Name field, make sure **Adventure Works DW 2014** displays, and then click **Finish**.

   The **Adventure Works DW 2014** data source view appears in the **Data Source Views** folder in Solution Explorer. The content of the data source view is also displayed in Data Source View Designer in SQL Server Data Tools (SSDT). This designer contains the following elements:

   - A **Diagram** pane in which the tables and their relationships are represented graphically.
   - A **Tables** pane in which the tables and their schema elements are displayed in a tree view.
   - A **Diagram Organizer** pane in which you can create subdiagrams so that you can view subsets of the data source view.
   - A toolbar that is specific to Data Source View Designer.
9. To maximize the Microsoft Visual Studio development environment, click the **Maximize** button.
10. To view the tables in the **Diagram** pane at 50 percent, click the **Zoom** icon on the Data Source View Designer toolbar. This will hide the column details of each table.
11. To hide Solution Explorer, click the **Auto Hide** button, which is the pushpin icon on the title bar. To view Solution Explorer again, position your pointer over the Solution Explorer tab along the right side of the development environment. To unhide Solution Explorer, click the **Auto Hide** button again.
12. If the windows are not hidden by default, click **Auto Hide** on the title bar of the Properties and Solution Explorer windows.

    You can now view all the tables and their relationships in the **Diagram** pane. Notice that there are three relationships between the FactInternetSales table and the DimDate table. Each sale has three dates associated with the sale: an order date, a due date, and a ship date. To view the details of any relationship, double-click the relationship arrow in the **Diagram** pane.

Modifying Default Table Names

In the following task, you will change the friendly name of each table in the data source view by removing the "**Dim**" and "**Fact**" prefixes from these tables. This will make the cube and dimension objects (that you will define in the next lesson) easier to notice and use.

You can also change the friendly names of columns, define calculated columns, and join tables or views in the data source view to make them easier to use.

To modify the default name of a table

1. In the **Tables** pane of **Data Source View Designer**, right-click the **FactInternetSales** table, and then click **Properties**.

2. If the Properties window on the right side of the Microsoft Visual Studio window is not displayed, click the **Auto Hide** button on the title bar of the Properties window so that this window remains visible.

   It is easier to change the properties for each table in the data source view when the Properties window remains open. If you do not pin the window open by using the **Auto Hide** button, the window will close when you click a different object in the **Diagram** pane.

3. Change the **FriendlyName** property for the **FactInternetSales** object to ***InternetSales***.

   When you click away from the cell for the **FriendlyName** property, the change is applied. In the next lesson, you will define a measure group that is based on this fact table. The name of the fact table will be InternetSales instead of FactInternetSales because of the change you made in this lesson.

4. Click **DimProduct** in the **Tables** pane. In the Properties window, change the **FriendlyName** property to ***Product***.
5. Change the **FriendlyName** property of each remaining table in the data source view in the same way, to remove the "**Dim**" prefix.
6. When you have finished, click the **Auto Hide** button to hide the Properties window again.
7. On the **File** menu, or on the toolbar of SQL Server Data Tools, click **Save All** to save the changes you have made to this point in the project.

Defining and Deploying a Cube

You will define one or more dimensions and then use the Cube Wizard to define a cube that uses those dimensions.

Defining a Dimension

In the following task, you will use the Dimension Wizard to build a Date dimension.

To define a dimension

1. In Solution Explorer (on the right side of Microsoft Visual Studio), right-click **Dimensions**, and then click **New Dimension**. The Dimension Wizard appears.
2. On the **Welcome to the Dimension Wizard** page, click **Next**.
3. On the **Select Creation Method** page, verify that the **Use an existing table** option is selected, and then click **Next**.
4. On the **Specify Source Information** page, verify that the **Adventure Works DW 2014** data source view is selected.
5. In the **Main table** list, select **Date**.
6. Click **Next**.

7. On the **Select Dimension Attributes** page, select the check boxes next to the attributes you need:
   - **Date Key**
   - **Full Date Alternate Key**
   - ***and ?***
   - ***and ?***
8. Change the setting of the **Full Date Alternate Key** attribute's **Attribute Type** column from **Regular** to **Date**. To do this, click **Regular** in the **Attribute Type** column. Then click the arrow to expand the options. Next, click **Date** > **Calendar** > **Date**. Click **OK**. Repeat these steps to change the attribute type of the attributes as follows:
   - **Calendar Year** to **Year**
   -
9. Click **Next**.
10. On the **Completing the Wizard** page, in the Preview pane, you can see the **Date** dimension and its attributes.
11. Click **Finish** to complete the wizard.

    In Solution Explorer, in the IESN2016Project1, the Date dimension appears in the **Dimensions** folder. In the center of the development environment, Dimension Designer displays the Date dimension.
12. On the **File** menu, click **Save All**.
13. Do the same for the Employee and Product Dimensions

Defining the Cube

To define a cube and its properties

1. In Solution Explorer, right-click **Cubes**, and then click **New Cube**. The Cube Wizard appears.
2. On the **Welcome to the Cube Wizard** page, click **Next**.
3. On the **Select Creation Method** page, verify that the **Use existing tables** option is selected, and then click **Next**.
4. On the **Select Measure Group Tables** page, verify that the **Adventure Works DW 2014** data source view is selected.
5. Click **Suggest** to have the cube wizard suggest tables to use to create measure groups.

   The wizard examines the tables and suggests **InternetSales** as a measure group table. Measure group tables, also called fact tables, contain the measures you are interested in, such as the number of units sold.

6. Click **Next**.
7. On the **Select Measures** page, review the selected measures in the **Internet Sales** measure group, and then clear the check boxes all the measures but:
   - **SalesAmount**

- **OrderQuantity**

8. Click **Next**.
9. On the **Select Existing Dimensions** page, make sure the **Date** dimension that you created earlier is selected, and then click **Next**.
10. On the **Select New Dimensions** page, select the new dimensions to be created. To do this, verify that the **Product** check boxes are selected, and then unselect the **InternetSales** check box car InternetSales ne doit pas être considéré comme une dimension.
11. Click **Next**.
12. On the **Completing the Wizard** page, change the name of the cube to **IESN2016Cube1**. In the Preview pane, you can see the **InternetSales** measure group and its measures. You can also see the **Date**, **Customer,** and **Product** dimensions.
13. Click **Finish** to complete the wizard.

    In Solution Explorer, in the Iesn2016Project, the **IESN2016Cube1** appears in the **Cubes** folder, and the Customer and Product database dimensions appear in the **Dimensions** folder. Additionally, in the center of the development environment, the Cube Structure tab displays the Analysis Services Tutorial cube.

14. On the toolbar of the Cube Structure tab, change the **Zoom** level to 50 percent, so that you can more easily see the dimensions and fact tables in the cube. Notice that the fact table is yellow and the dimension tables are blue.
15. On the **File** menu, click **Save All**.

Deploying the IESN2016Project1

To deploy the IESN2016Project1

1. In Solution Explorer, right-click the **IESN2016**Project1, and then click **Properties**.

In the **Configuration Properties** node in the left pane, click **Deployment**.
Change the **Server** property to the appropriate instance name, such as <*ServerName*>\<*InstanceName*>.
Verify the value for Database property : IESN2016Cube1 or another name you want for.

2. Click **OK**.
3. In Solution Explorer, right-click the **IESN2016**project1, and then click **Deploy**. You might need to wait.
4. SQL Server Data Tools (SSDT) builds and then deploys the IESN2016project1 to the specified instance of Analysis Services by using a deployment script. The progress of the deployment is displayed in two windows: the **Output** window and the **Deployment Progress** window.
5. Review the contents of the **Output** window and the **Deployment Progress** window to verify that the cube was built, deployed without errors.

You have successfully deployed the IESN2016Cube1 to your local instance of Analysis Services,

Processing the IESN2016Project1

To process the IESN2016Project1

In Solution Explorer, right-click the **IESN2016**project1, and then click **Properties**.
In the **Configuration Properties** node in the left pane, click **Process**.
Review the contents of the **Output** window and the **Process Progress** window to verify that the cube was built, deployed and processed without errors.

Browsing the Cube

1. Double-click the **IESN2016Cube1** in the **Cubes** node of Solution Explorer.
2. Select the **Browser** tab, and then click the **Reconnect** icon on the toolbar of the designer.

The left pane of the designer shows the objects in the IESN2016Cube1. On the right side of the **Browser** tab, there are two panes: the upper pane is the **Filter** pane, and the lower pane is the **Data** pane. In an upcoming lesson, you will use the cube browser to do analysis.