

CS Data Warehouse

Entersoft Business Suite®

Configuration

Identity

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Table of Contents

Required tools	4
Data Warehouse Objects	5
1. SalesAnalytics cube	5
2. RetailSalesTransactionAnalytics cube	6
3. RetailItemDimensionAnalysis cube	7
SQL Server Analysis Services (SSAS) Project	8
1. Set deployment server	8
2. Set Data Source	9
3. Project deployment	10
SQL Server Integration Services (SSIS) Project	11
1. Set SQL Server Analysis Services (SSAS) Database connection	11
2. Project deployment	12
SQL Server Agent Job	13
Accessing Cube through Excel	14
Accessing Cube through Power BI	16

Required tools

To begin with, in order to develop and deploy On-line analytical processing cubes the following must be installed:

- **MS SQL Server Analysis Services (SSAS)**

It is an analytical data engine used in decision support and business analytics and it provides enterprise-grade semantic data models for business reports.

Hereafter, the SQL Server Analysis Services will be called 'SSAS'.

This engine is installed through the MS SQL Server Management Studio installation CD.

- **MS SQL Server Integration Services (SSIS)**

It is a platform for building enterprise-level data integration and data transformation solutions.

Hereafter, the SQL Server Analysis Services will be called 'SSIS'.

This platform is also installed through the MS SQL Server Management Studio installation CD.

- **MS SQL Server Data Tools (SSDT)**

This tool is used for building, debugging, maintaining and refactoring databases or database projects.

Hereafter, the SQL Server Analysis Services will be called 'SSDT'.

This tool could be found and downloaded for free by accessing the following URL: [Download SQL Server Data Tools \(SSDT\)](#)

Data Warehouse Objects

This data warehouse project is consisted of three (3) Cubes; **SalesAnalytics**, **RetailSalesTransactionAnalytics**, **RetailItemDimensionAnalysis** and numerous dimensions and measure groups.

1. SalesAnalytics cube

Dimension	Attributes
<i>Company</i>	Company
<i>Company Branch</i>	Branch
<i>Customer</i>	Customer, Code, Name, Family, Industry
<i>Customer Address</i>	Region – Country – District – City, Address
<i>Date Analysis</i>	Year – Semester – Quarter – Month, Date, IsCurrent
<i>Sales Person</i>	Name
<i>Item</i>	Family – Group – Category – Subcategory – Item
<i>Business Unit</i>	Business unit
<i>Business Activity</i>	Business activity
<i>Dimension 1</i>	Dimension 1
<i>Dimension 2</i>	Dimension 2

Measure Group	Measures
<i>Fact Key Figures</i>	Turnover, Discounts, Sales Qty, Cost Of Goods Sold, Profit Margin ¹ , Profit Margin Percent ¹ , Turnover Variance ¹ , Turnover Variation Percent ¹ , Sales Qty Variance ¹ , Sales Qty Variation Percent ¹
<i>Transaction Key Figures</i>	Transactions Count, Transactions Count Variance ¹ , Transactions Count Variation Percent ¹
<i>Customer Key Figures</i>	Customers Count, Customers Count Variance ¹ , Customers Count Variation Percent ¹
<i>Item Key Figures</i>	Items Count, Items Count Variance ¹ , Items Count Variation Percent ¹

¹ Calculated member

2. RetailSalesTransactionAnalytics cube

Dimension	Attributes
<i>Company</i>	Company
<i>Company Branch</i>	Branch
<i>Customer</i>	Customer, Code, Name, Family, Industry
<i>Customer Address</i>	Region – Country – District – City, Address
<i>Retail Date Analysis</i>	Year – Semester – Quarter – Month – Week - Day, Date, IsCurrent
<i>Item</i>	Family – Group – Category – Subcategory – Item
<i>Document</i>	Document, Document Type, Anonymous customer, Credit Card Use, Time Zone
<i>Business Unit</i>	Business unit
<i>Business Activity</i>	Business activity
<i>Dimension 1</i>	Dimension 1
<i>Dimension 2</i>	Dimension 2

Measure Group	Measures
<i>Fact Key Figures</i>	Turnover, Discounts, Sales Qty, Cost Of Goods Sold, Turnover Variance ² , Average Turnover Per Transaction ² , Sales Qty Variance ² , Sales Qty Variation Percent ²
<i>Transaction Key Figures</i>	Transactions Count, Transactions Count Variance ² , Transactions Count Variation Percent ² , Credit Card Transaction Count ² , Anonymous Customer Transaction Count ²
<i>Customer Key Figures</i>	Customers Count, Customers Count Variance ² , Customers Count Variation Percent ² , Anonymous Customer Count ² , Anonymous Customer Turnover ² , Anonymous Customer Turnover Percent ²
<i>Item Key Figures</i>	Items Count, Items Count Variance ² , Items Count Variation Percent ² , Item Family Count ² , Item Group Count ² , Item Category Count ² , Item Subcategory Count ²

² Calculated member

3. RetailItemDimensionAnalysis cube

Dimension	Attributes
<i>Company</i>	Company
<i>Company Branch</i>	Branch
<i>Retail Date Analysis</i>	Year – Semester – Quarter – Month – Week - Day, Date, IsCurrent
<i>Retail Item</i>	Family – Group – Category – Subcategory – Item
<i>Item Main Color</i>	Main color
<i>Item Main Size</i>	Main size

Measure Group	Measures
<i>Fact Retail Item Entries</i>	Turnover, Discounts, Sales Qty

SQL Server Analysis Services (SSAS) Project

After downloading the folder **CSDataWarehouseProject**, go to **SSAS** and open the **EntersoftDW.sln** file.

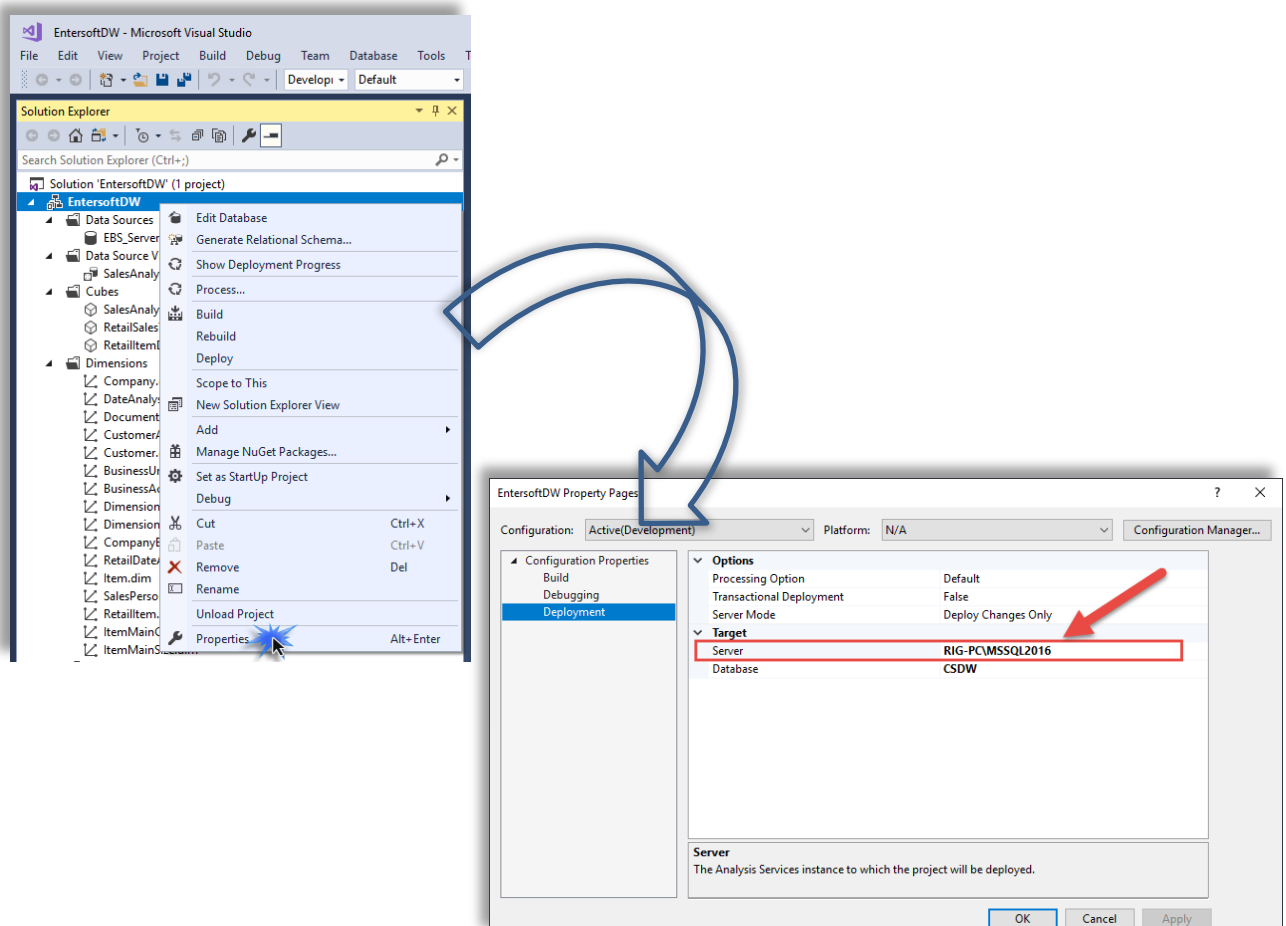
\CSDataWarehouseProject\ SSAS\			
Name	Date modified	Type	Size
EntersoftDW	2/4/2019 12:24	File folder	
EntersoftDW.sln	29/6/2018 15:53	Microsoft Visual S...	2 KB

1. Set deployment server

To set the deployment server right-click on the file of the project in the *Solution Explorer* pane and go to **Properties > Deployment** and declare the server name and the database name.



Changing the Database name is **NOT ALLOWED**. The Database name should **ALWAYS** be **CSDW**.



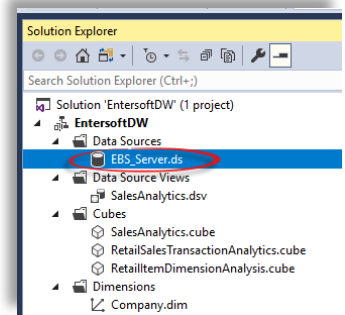
The screenshot shows the Visual Studio interface with the **EntersoftDW** project selected in the **Solution Explorer**. The **Properties** window is open, showing the **Deployment** tab. The **Configuration** is set to **Active(Development)** and the **Platform** is **N/A**. The **Options** section shows **Processing Option** as **Default**, **Transactional Deployment** as **False**, and **Server Mode** as **Deploy Changes Only**. The **Target** section shows the **Server** field set to **RIG-PC\MSQL2016** and the **Database** field set to **CSDW**. A red arrow points to the **Server** field, and another red arrow points to the **Database** field.

2. Set Data Source

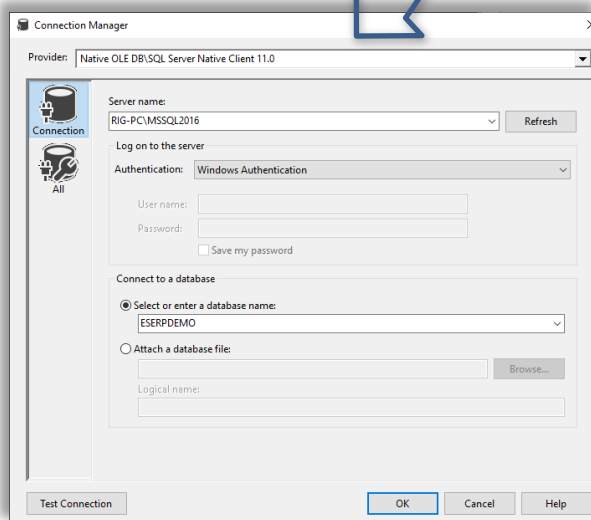
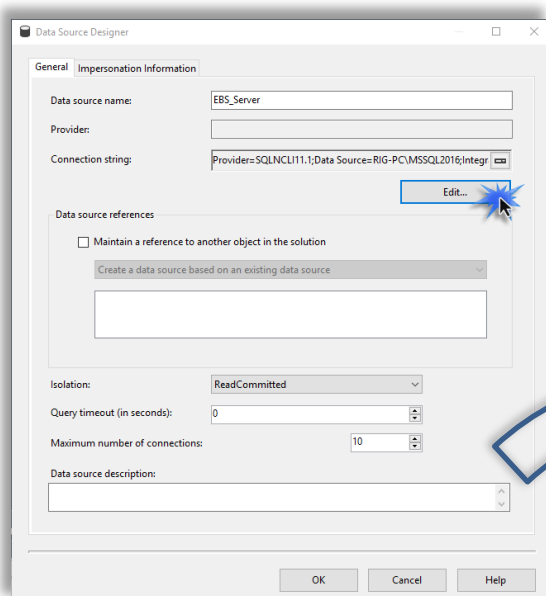
To set data source connection, go to **EntersoftDW > Data Sources > EBS_Server.ds** and double-click on **EBS_Server.ds** in the *Solution Explorer* pane.

When the Data Source Designer opens, click on **edit** button to set the Server name, server log on credentials and the database in the '**General**' tab.

By default, the '*Use the service account*' option is selected in the '**Impersonation Information**' tab. In this case, the Analysis Services object uses the security credentials associated with the Analysis Services service that manages the object.

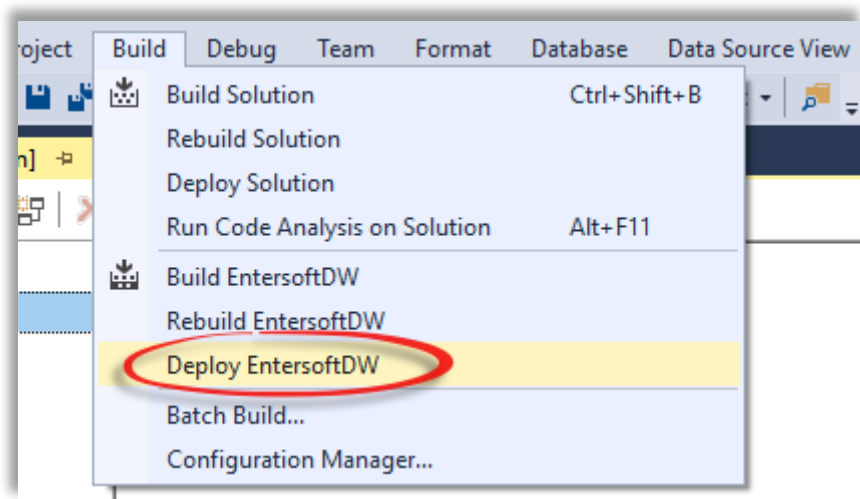


Changing the Data source name is NOT ALLOWED. The Data source name should ALWAYS be EBS_Server.



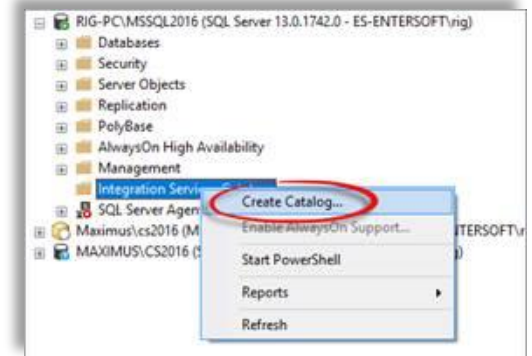
3. Project deployment

To complete the overall process, the project must be deployed. On the SSDT Toolbar select **Build > Deploy EntersoftDW**.



SQL Server Integration Services (SSIS) Project

The existence of **Integration Services Catalog** is mandatory in the MS SQL Server Management Studio. If there is no integration services catalog, you must create one by accessing the MS SQL Server Management Studio. Right-click on the **Integration services catalogs** file and select **Create Catalog**.



1. Set SQL Server Analysis Services (SSAS) Database connection

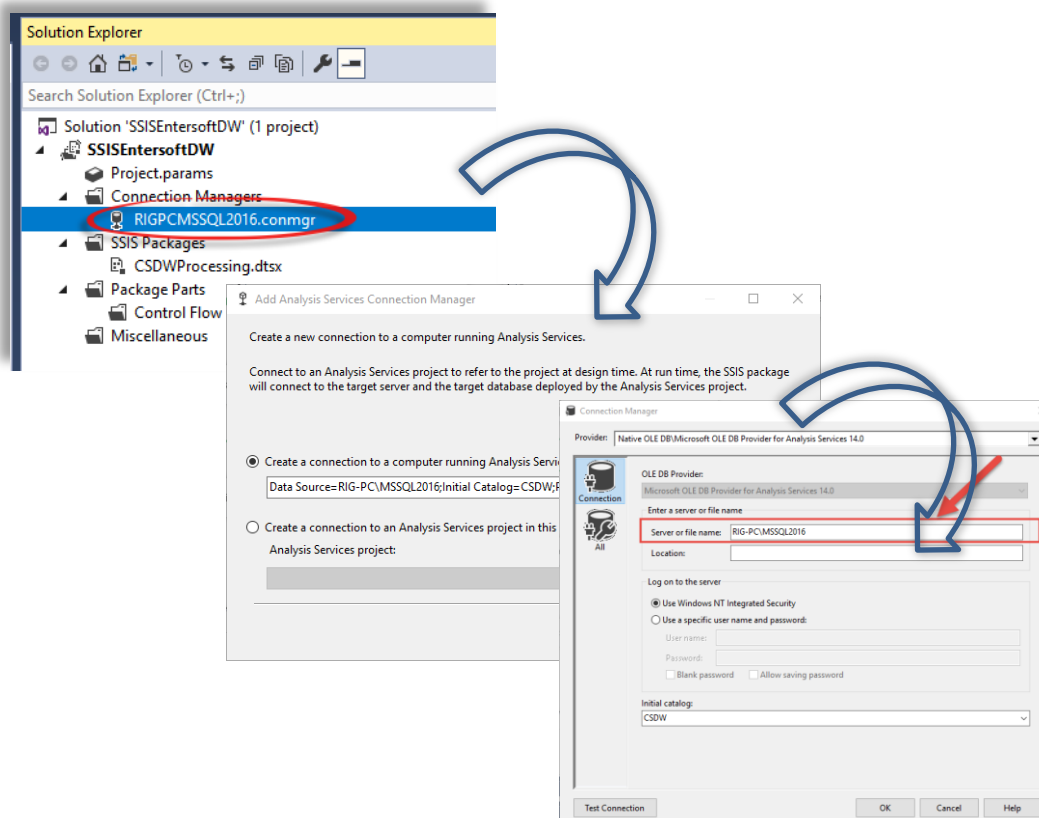
After creating the Integration Services Catalog, go to the **CSDataWarehouseProject** folder > **SSIS** and open the **SSISEntersoftDW.sln** file and set the SQL Server Analysis Services (SSAS) Database connection.

To set the SQL Server Analysis Services Database connection, go to **SSISEntersoftDW > Connection Managers** and double-click on **connmgr** file in the *Solution Explorer* pane.

When the Analysis Services Connection Manager opens, click on **edit** button to set the Server name.



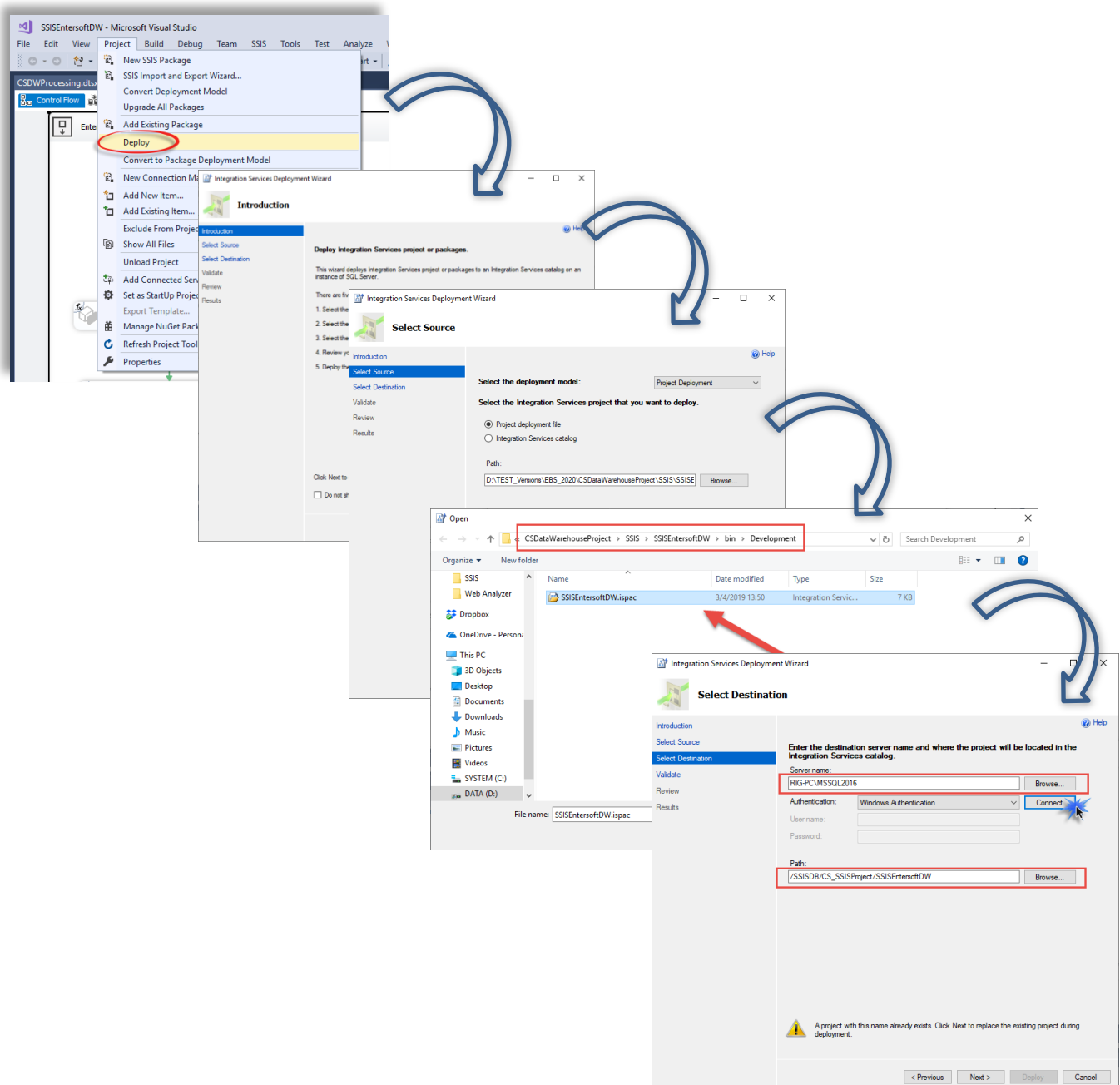
Changing the Initial Catalog is NOT ALLOWED. The Initial Catalog should ALWAYS be CSDW.



2. Project deployment

To complete the overall process, the project must be deployed. On the SSDT Toolbar select **Project > Deploy** to open the deployment wizard. Click 'Next' in the Introduction pane to proceed.

- Select "Project Deployment" option in *Select the deployment model* parameter.
- Activate the "Project deployment file" option and click browse to go to `...\CSDataWarehouseProject\SSIS\SSISEntersoftDW\bin\Development`, select **SSISEntersoftDW.ispac** and click next.
- Set Server name, click 'Connect' and browse to assign the integration catalog folder. In the following panes, click 'Next' and finally 'Deploy'.

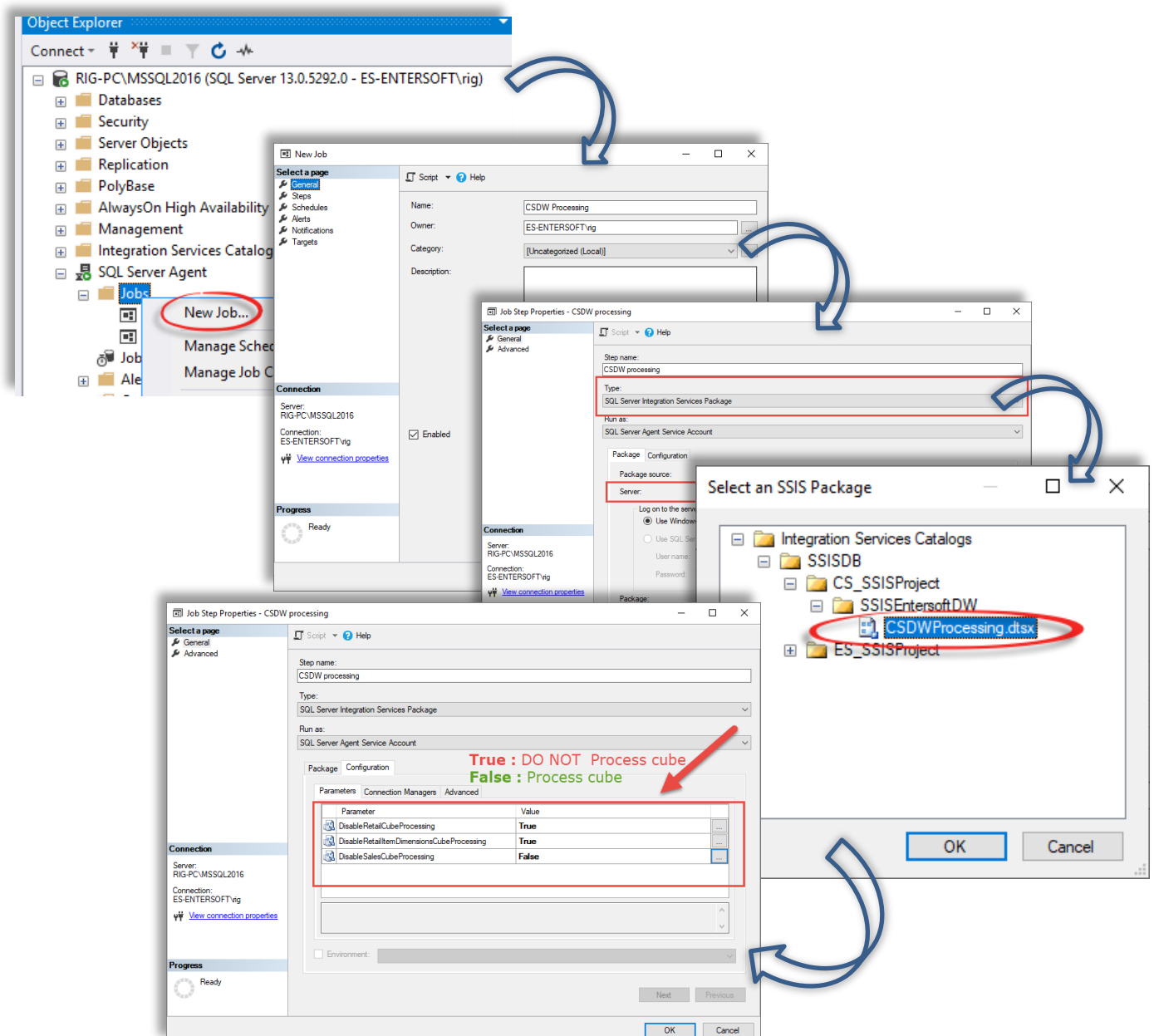


SQL Server Agent Job

After deploying the SQL Server Integration Services Project, go to SQL Server Management Studio, browse SQL Server Agent. Right-click on 'Jobs' folder and select 'New Job'.

- Give a name to this job in 'General' tab
- Go to 'Steps' tab and click 'New...'. Name this step.
- In the type parameter select 'SQL Server Integration Services Package', set the server name in the **packages** tab and select the SSIS package that was previously deployed.
- Go to the **configuration** tab and define which of the [three \(3\) available cubes](#) you wish to be processed by setting each parameter to **True** or **False**.

If **False** then the cube **WILL BE PROCESSED**.
 If **True** then the cube **WILL NOT BE PROCESSED**.
- Schedule the job based on your needs in order to process the selected cubes.



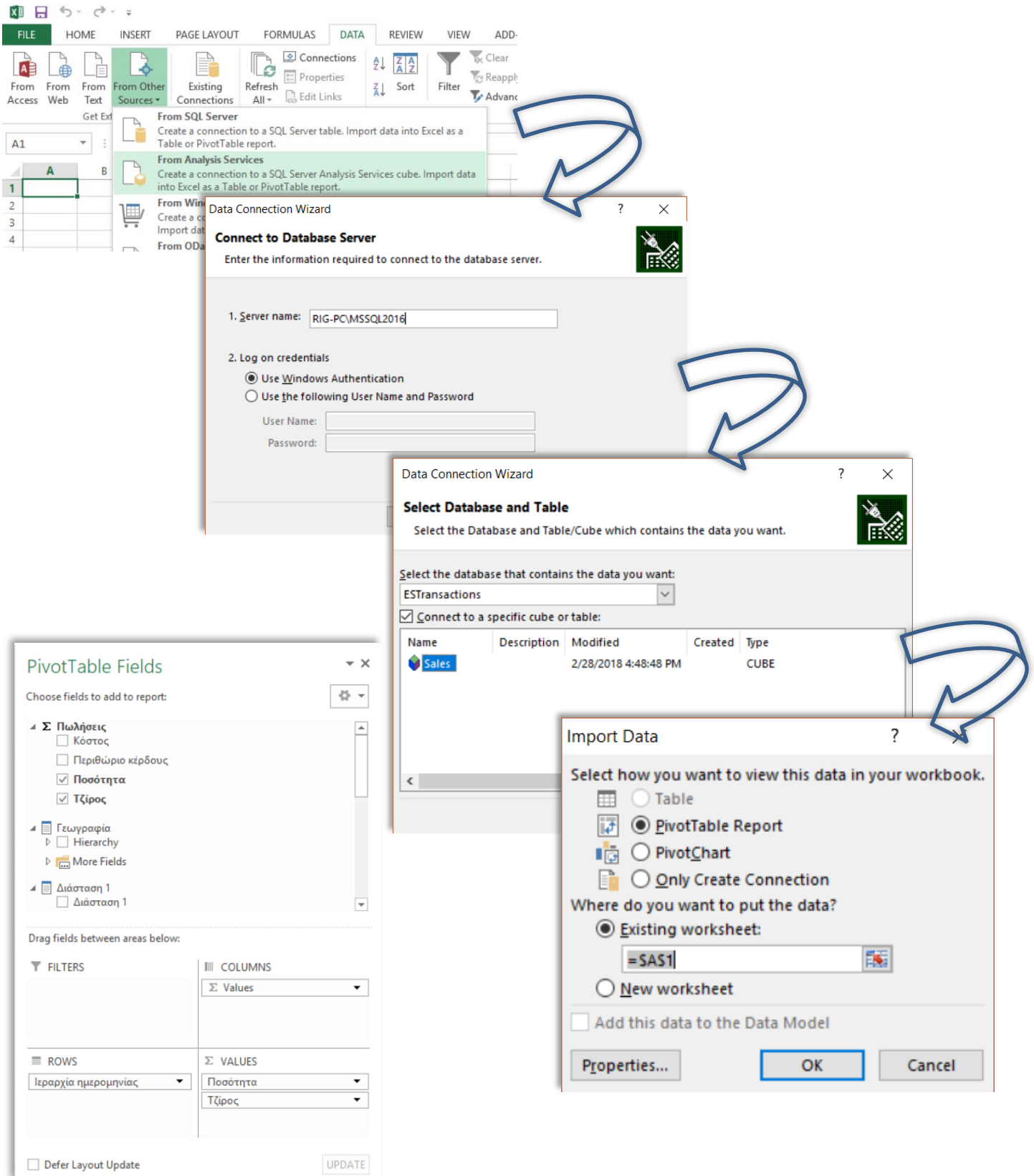
Job Step Properties - CSDW processing

Parameter	Value
DisableRetailCubeProcessing	True
DisableRetailItemDimensionsCubeProcessing	True
DisableSalesCubeProcessing	False

True : DO NOT Process cube
 False : Process cube

Accessing Cube through Excel

Open a new Excel sheet and go to **Data > From other Sources** and select **From Analysis Services**. On the pop-up screen declare the SQL Server Analysis Services name and then the cube. Define the type of data depiction (Pivot table or Pivot chart) and declare the measures and dimensions that you want to insert through the Pivot table or chart pane.



The screenshot illustrates the process of connecting to a cube in Excel. The **Data** tab is active, and the **From Other Sources** group is expanded, showing the **From Analysis Services** option. The **Data Connection Wizard** is shown in two steps: **Connect to Database Server** and **Select Database and Table**. The **Import Data** dialog is also shown, where the user can choose to view the data as a **PivotTable Report** and specify the location (e.g., **=SAS1**).

Data Connection Wizard - Connect to Database Server

Enter the information required to connect to the database server.

1. Server name:

2. Log on credentials

☒ Use Windows Authentication

☐ Use the following User Name and Password

User Name:

Password:

Data Connection Wizard - Select Database and Table

Select the Database and Table/Cube which contains the data you want.

Select the database that contains the data you want:

☒ Connect to a specific cube or table:

Name	Description	Modified	Created	Type
Sales		2/28/2018 4:48:48 PM		CUBE

Import Data

Select how you want to view this data in your workbook.

☐ Table

☒ PivotTable Report

☐ PivotChart

☐ Only Create Connection

Where do you want to put the data?

☒ Existing worksheet:

☐ New worksheet

☐ Add this data to the Data Model

PivotTable Fields

Choose fields to add to report:

☒ Πωλήσεις

☐ Κόστος

☐ Περιθώριο κέρδους

☒ Ποσότητα

☒ Τζίρος

☒ Γεωγραφία

☐ Hierarchy

☐ More Fields

☒ Διάσταση 1

☐ Διάσταση 1

Drag fields between areas below:

FILTERS

COLUMNS

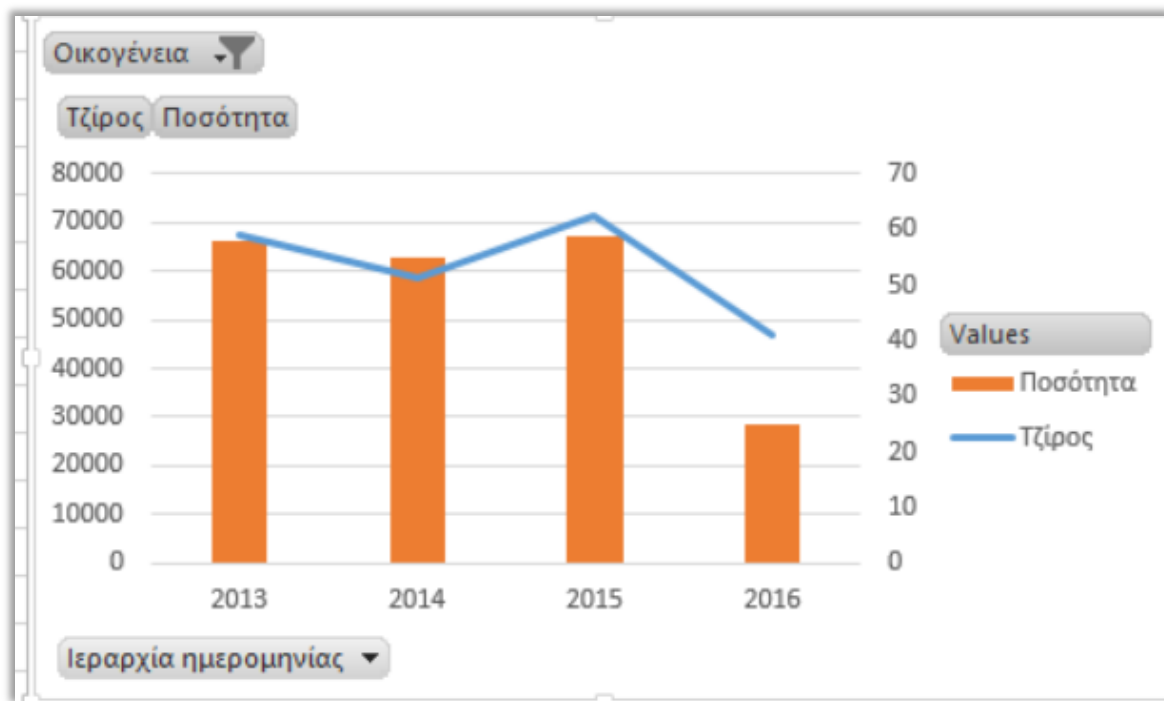
ROWS

VALUES

☐ Defer Layout Update

UPDATE

	A	B	C	D	E	F	G	H	I	J	K
1	Column Labels										
2	Τζίρος										
3	Row Labels	SOFTWARE	ΑΞΕΣΟΥΑΡ	ΒΙΒΛΙΑ	ΔΟΜΙΚΑ ΥΛΙΚΑ	ΕΞΟΠΛΙΣΜΟΣ ΣΠΙΤΙΟΥ	ΗΛΕΚΤΡΙΚΑ	ΙΑΤΡΙΚΑ	ΚΑΛΛΥΝΤΙΚΑ	ΠΑΡΑΓΩΓΗ	ΠΛΗΡΟΦΟΡΙΚΗ
4	2013	67664,2	350	437,73			232212,86	6732	2669,82		25684,35
5	2014	58657,54	683,34	1524,83			217508,66	6732	4042,31		24988,71
6	2015	71534,6	1715,84	655,35			245067,81	6732	1895,11		25684,35
7	2016	47010	910,56	540,38	950	337	292910,8	1980	4115,52	80	47772,22
8	Q1	26000	910,56	452,33	625		81619,28		2205		1,2
9	Ιανουάριος	14000	910,56	305,58	225		49249,02		152,84		
10	Μάρτιος	9000		88,05			20472,06		1797,67		
11	Φεβρουάριος	3000		58,7	400		11898,2		254,49		1,2
12	Q2			88,05			56681,56				21231,53
13	Q3						78650,62	1980			25658,29
14	Q4	21010			325	337	75959,34		1910,52	80	881,2
15	2017				1225		53,18				4411
16	Grand Total	244866,34	3659,74	3158,29	2175	337	987753,31	22176	12722,76	80	128540,63
17											



Accessing Cube through Power BI

Open Power BI and go to **Get Data > Analysis Services**. On the pop-up screen declare the SQL Server Analysis Services name (mandatory field) and the database name (optional field) and click ok. A 'Navigator' form is shown in order to select the cube you wish to use. After selecting a cube, its schema is shown in the **Fields** pane and you can design your charts by selecting one or more measures and dimensions.

