

# BI4Dynamics Application

## Installation Manual for BC & NAV on Local or Azure Virtual Machine

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# 1. Installation

Installation documentation consists of documents:

1. Installation of BI server on **Local Machine** or **Azure Virtual Machine (VM)**
2. Installation of BI4Dynamics application - this process is covered by this document  
There is very little difference in application installation on Local or VM.

## 1.1. Prerequisite

All prerequisite fields are result of that Local or VM installation (fields here are for example only):

### Permissions

All six (6) accounts can be combined into one (1) Windows domain account:

1. Be (local) administrator on the windows server where BI4Dynamics is installed.
2. Read permissions on the BC database.
3. Read permissions on the master database of the source database SQL Server (only required if the BC license is uploaded to the SQL server)
4. Create database and linked server permissions on MS SQL Server where the BI4Dynamics DW will be deployed.
5. Granted Server role on MS SQL Analysis Services where the BI4Dynamics OLAP cubes will be deployed. Additionally, the Analysis Server service should run under BI4Dynamics domain account.
6. SQL Agent job Service user account needs all the above stated permissions.

### Implementation options

**Azure Analysis Services** option:

Description	Value
Azure Analysis Services	asazure://westeurope.asazure.windows.net/bi4dynamicshybrid
Username (AAS admin)	<a href="mailto:mg@bi4dynamics.com">mg@bi4dynamics.com</a>
Password	Qpewoicsj490wkss

**Azure SQL VM** option:

Description	Value
RDP connection string (or RDP file)	vm-bi4-demo.westeurope.cloudapp.azure.com:3389
SQL server name (as seen in Azure)	vm-bi4-demo.westeurope.cloudapp.azure.com
VM Admin Account	vm-admin-user
VM Admin Account Password	6!dJ2yS34MbbQiPHs@rd

Use VM admin account for all permissions above.

## 1.2. Installing BI4Dynamics application

### Important notice

**IMPORTANT!** Before installing BI4Dynamics, please check hardware and software requirements, make sure you have sufficient permissions and an active internet connected.

**IMPORTANT!** The installation process must be started on BI server where BI4Dynamics Data Warehouse will be created.

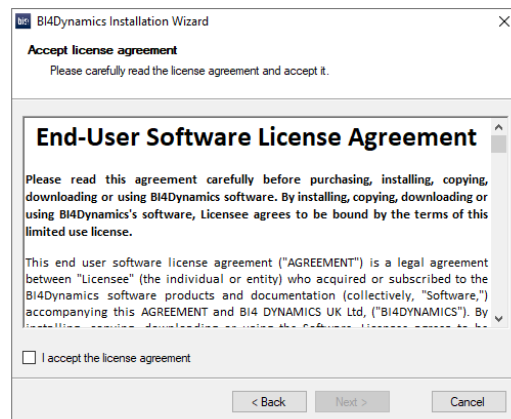
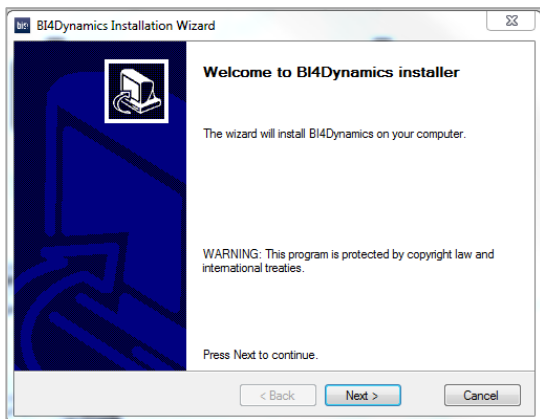
### Install desktop BI4Dynamics application

1. Double-click **BI4Dynamics.exe** to start the installation\*.

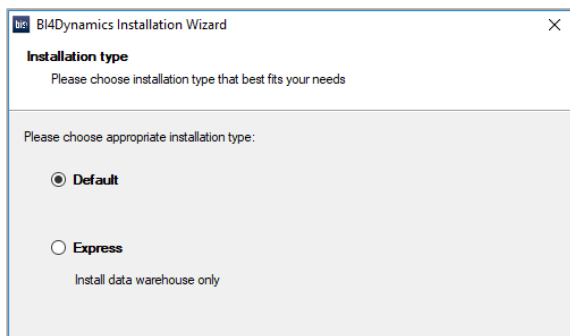
*\*Always start BI4Dynamics as an administrator.*

*Note: The name of the file varies based on the version you are using.*

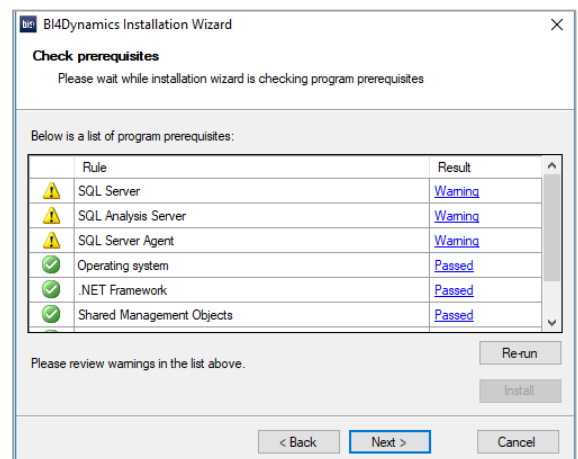
2. Follow the instructions on screen and Accept the license agreement.



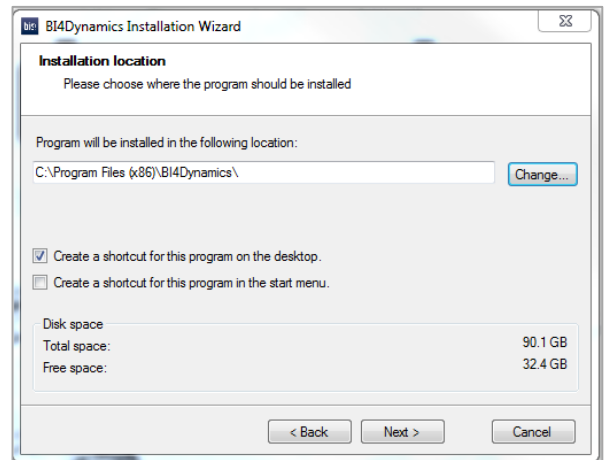
3. Choose Default or Express option



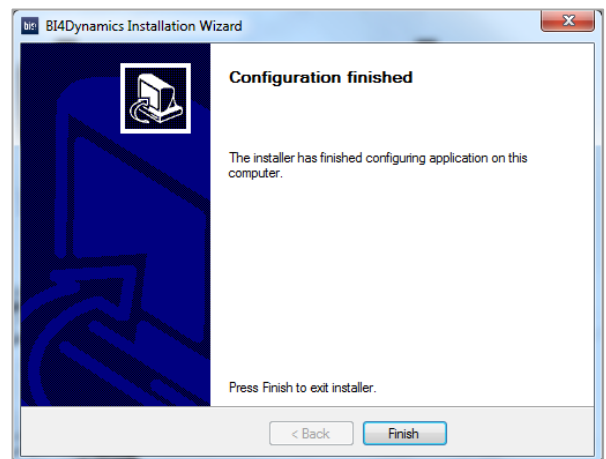
4. The installer will check for some of the prerequisites. If you fail any of the tests you can click on the result to see the error. You must fix the problem before you can rerun the test. Once all the tests are successfully completed you can continue with the installation.



5. If a correct version of Shared Management Objects, Analysis Management Objects or .NET Framework are not installed, please click the Install button, which will trigger the installation of correct version of SMO's, AMO's, CLR Types or .NET Framework.
6. Select the folder where you would like to install BI4Dynamics. You can choose to create a shortcut on the desktop and/or in the start menu.



7. Confirm the configuration and begin the installation of BI4Dynamics.
8. Click **Finish** after the installation is completed.



## 1.3. Creating BI4Dynamics instance

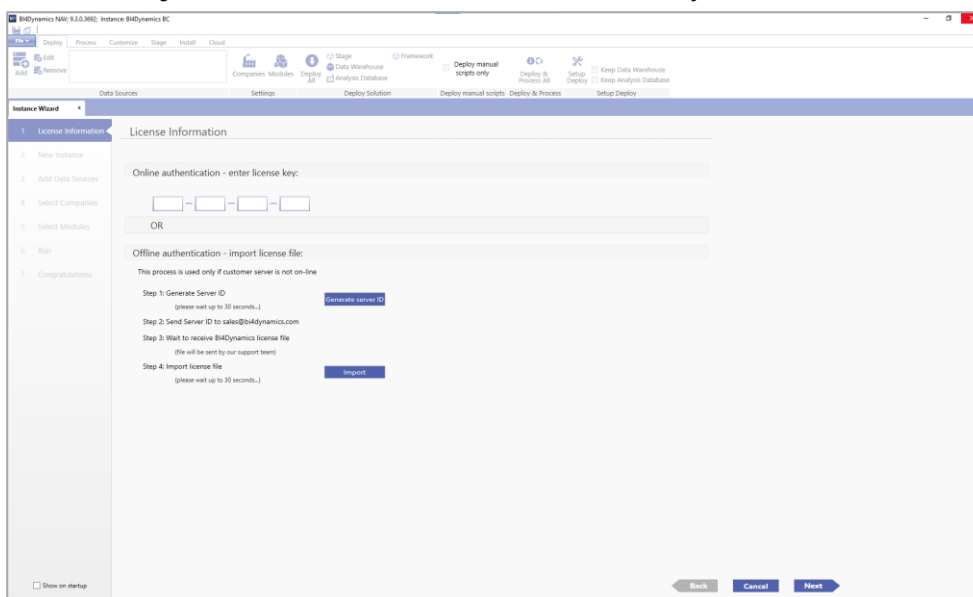
Deploying a BI4Dynamics solution is a six-step process:

1. Providing license information
2. Creating an instance
3. Adding the data sources
4. Selecting companies and global dimensions
5. Selecting modules
6. Deploying and processing model

When you open the application, an instance wizard will start to guide you through the configuration.

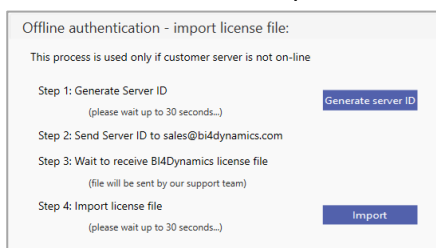
### Step 1: Providing license information

1. Launch **BI4Dynamics.exe** from the folder where BI4Dynamics was installed to open the application.



Note: BI4Dynamics is 64-bit application, but the default installation location is C:\Program Files (x86)\BI4Dynamics NAV. Application can also be started from the Desktop shortcut or from the Start Menu shortcut.

2. Enter the BI4Dynamics **online license key**
- OR
3. Follow the instructions on screen to receive an **offline license key** (in case you do not have the internet connection or port 80 on the server is closed).



Note: If you experience any problems with authorization, please contact us via [support@bi4dynamic.com](mailto:support@bi4dynamic.com).

4. Click **Next**.

## Step 2 A: Creating a new instance with local Analysis Services

In this chapter we cover option where Analysis Services Database is deployed on local BI server.

### Instance properties

1. Type the **Name** of the new instance.
2. Select what **Language** the solution will be deployed in.

### SQL server

3. Keep or change **Database Name** of the BI4Dynamics Data Warehouse
4. Type **SQL Server Name** where the BI4Dynamics Data Warehouse will be deployed (in case of Azure Virtual Machine: vm-bi4-demo.westeurope.cloudapp.azure.com)
5. **Authentication** type: **Windows**

**New Instance**

**Instance properties**

Instance Name:

Language:

**Analysis Services**

Analysis Database Name:

Analysis Server Name:

Analysis Server Option:

Authentication:

Username:

Password:

Mode type:

**SQL Server**

Database Name:

SQL Server Name:

Authentication:

SQL Database File Locations:

Data:

Log:

SQL Database Collation:

**Integration Services**

Use Integration Services:

### Analysis Services

1. Keep or change the **Analysis Database Name** of the Analysis Services instance.
2. Keep or change the **Analysis Database Server** name where the Analysis Services model will be deployed.
3. **Authentication** type: **Windows**

If you plan to use Azure Analysis Services, follow Chapter 2 to install Azure Analysis Services and On-premises gateway. Come back when finished.

## Step 2 B: Creating a new instance with Azure Analysis Services

This is the only step different in Azure Analysis Services installation compared to local Analysis Services.

This is the **beginning** of specificity step in Azure Analysis Services installation.

Continue within the same form and do the following setting:

### Analysis Services

- **Analysis Server name:** enter the name of the Azure Analysis Services (asazure://westeurope.asazure.windows.net/bi4dynamicshybrid)
- **Authentication:** Azure Active Directory
- **Username:** email of the admin user that has been entered when creating Azure Analysis Services (adminuser@domain.com)
- **Password:** enter password for Azure Active Directory

### SQL server

This setting must be updated, here is why: As we are moving Analytics to Azure, we also need to move credential information to Azure Analysis Services. Authentication for SQL server will be saved to Azure Analysis Services string connection as Account impersonation. This is not needed if Analysis Services are on-premises.

When choosing Azure Active Directory in Analysis Services setup, a new Authentication window will open for SQL Server. Please enter

- **Username:** same user in **DOMAIN\adminuser** format
- **Password:** password for this user

Instance properties		Analysis Services	
Instance Name:	BI4Dynamics BC OnPremise	Analysis Database Name:	BI4Dynamics BC OnPremise
Language:	English (United States)	Analysis Server Name:	asazure://westeurope.asazure.wir
<b>SQL Server</b>		Analysis Server Option:	Tabular
Database Name:	BI4Dynamics BC OnPremise	Authentication:	Azure Active Directory
SQL Server Name:	ANDRIIW10	Username:	ab@bi4dynamics.com
Authentication:	Windows	Password:	*****
Username:	NPS-GROUP\andrii	Mode type:	Import
Password:	*****		
SQL Database File Locations:			
Data:	D:\SQL2019\MSSQL15\MSSQLSERVER\MSSQL\...		
Log:	D:\SQL2019\MSSQL15\MSSQLSERVER\MSSQL\...		
SQL Database Collation:	Latin1_General_CI_AS		

This is the **end** of specificity step in Azure Analysis Services installation.



## Step 2 continue: Adding and testing additional resources

This is the current setting on the form, and we continue with installation:

### Local Analysis Services option

The screenshot shows the 'New Instance' form with the following settings:

- Instance properties:** Instance Name: BI4Dynamics BC OnPremise, Language: English (United States)
- SQL Server:** Database Name: BI4Dynamics BC OnPremise, SQL Server Name: ANDRIIW10, Authentication: Windows
- SQL Database File Locations:** Data: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\, Log: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\
- SQL Database Collation:** Latin1\_General\_CI\_AS
- Integration Services:** Use Integration Services:

### Azure Analysis Services option

The screenshot shows the 'New Instance' form with the following settings:

- Instance properties:** Instance Name: BI4Dynamics BC OnPremise, Language: English (United States)
- SQL Server:** Database Name: BI4Dynamics BC OnPremise, SQL Server Name: ANDRIIW10, Authentication: Windows, Username: NPS-GROUP\andrii, Password: \*\*\*\*\*
- SQL Database File Locations:** Data: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\, Log: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\
- SQL Database Collation:** Latin1\_General\_CI\_AS
- Analysis Services:** Analysis Database Name: BI4Dynamics BC OnPremise, Analysis Server Name: azure/warehouse.prd.onpremise, Analysis Server Option: Tabular, Authentication: Azure Active Directory, Username: BI4Dynamics@com, Password: \*\*\*\*\*

### Integration Services

Check **SQL Integration Service** to process BI4Dynamics using the Integration services. Integration Services are used for parallel processing.

### Refresh

Click **Refresh** to set default values for **SQL Database file Locations** (data and log files) and **SQL Database Collation** are entered automatically. Modify if necessary.

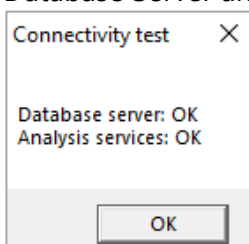
This is how setting should look (showing local Analysis Services option):

The screenshot shows the 'New Instance' form with the following settings:

- Instance properties:** Instance Name: BI4Dynamics BC OnPremise, Language: English (United States)
- SQL Server:** Database Name: BI4Dynamics BC OnPremise, SQL Server Name: ANDRIIW10, Authentication: Windows
- SQL Database File Locations:** Data: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\, Log: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\
- SQL Database Collation:** Latin1\_General\_CI\_AS
- Integration Services:** Use Integration Services: , SSIS Server name: ANDRIIW10, Ver: 15.0

Buttons: Refresh, Test Connectivity

Once all the fields are filled in, click **Test Connectivity** to check the credentials and connectivity to Database Server and Analysis Services. This should be the message:



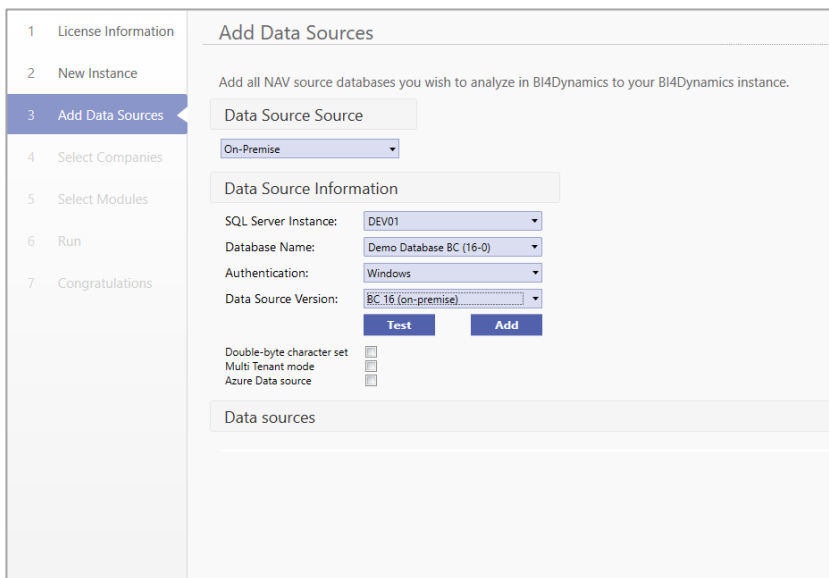
Click **Next**.

### Step 3: Adding Data Source

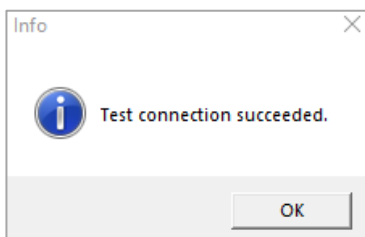
#### Azure Storage Information

This information is about **Azure Storage Account** that will be used to keep BC data. The values have been created during VM installation and are listed as a prerequisite for BC application installation.

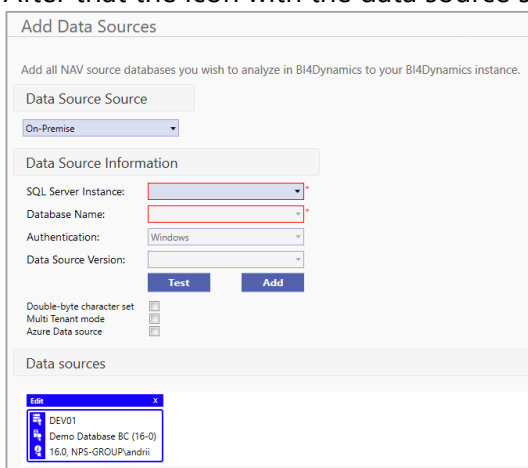
1. Select **On-Premise** as the Data Source
2. Select the **SQL Server Instance**, where the source database is located
3. Select the **Database Name** of the source database
4. Choose **Authentication** type: Windows or SQL Server (with SQL Server Authentication you also need to provide your username and password)
5. Select your Dynamics source version – **Data Source Version**
6. Click **Test** to check if the entered information is correct



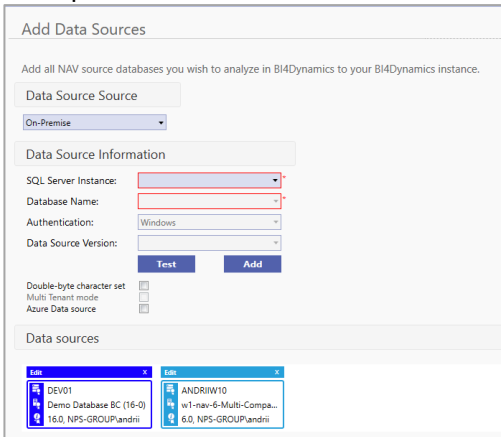
7. If the connection is successful as below, click **Add** to add the selected data source to the solution.



After that the icon with the data source should appear.



You can add more than one data source by clicking Add again. Each data source you add will be colored differently. Example of 2 data sources (**BC 16** and **NAV 2009**):



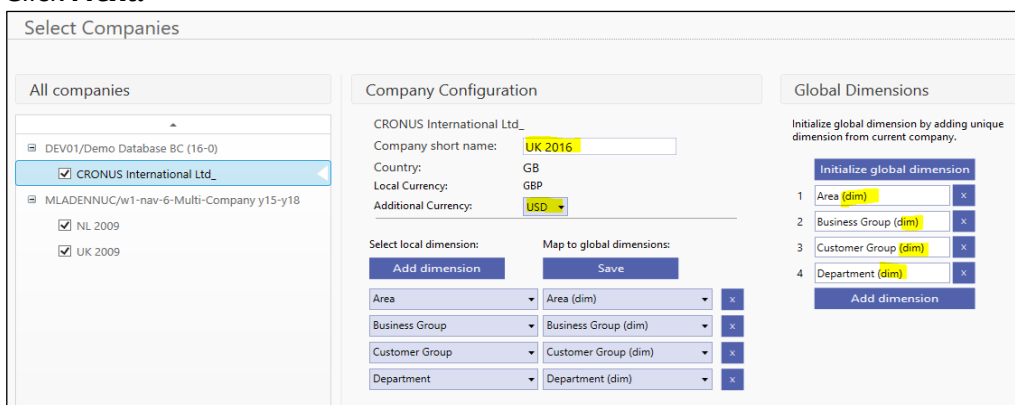
Once the data source(s) Click **Next**.

You have successfully added Data Sources

### Step 4: Selecting Companies and Global Dimensions

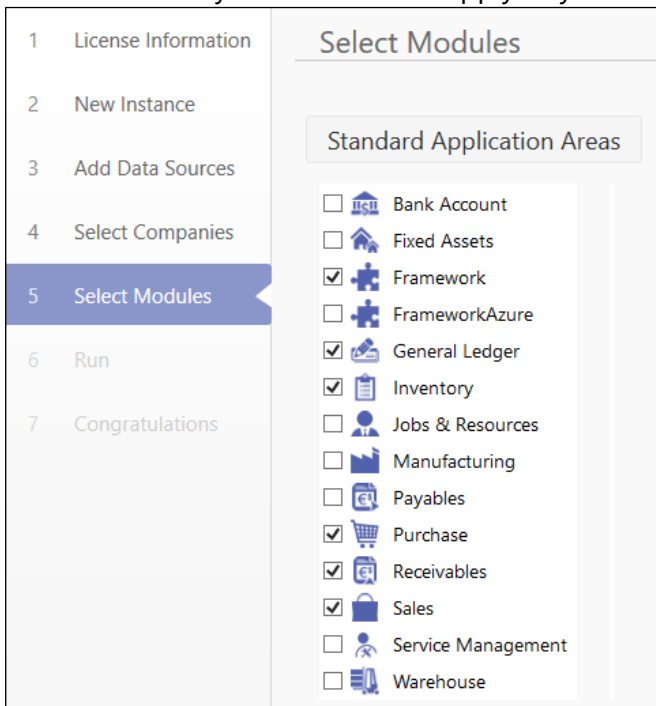
1. From the list of companies **tick the ones you want to include in your instance** and configure additional settings for each selected company:
  - a. **Company short name:** User-friendly name (example UK 2016)
  - b. Country: local country description - read from BC, no input
  - c. Local Currency: local currency code (example GBP) – read from BC, no input needed
  - d. **Additional Currency:** select the additional currency code for this company (example USD)
  - e. **Dimensions:**
    - i. Click **Initialize global dimensions** (delete the dimension by clicking the X button next to the dimension name if one or more dimensions will not be used in the project). We suggest adding a prefix or suffix to global dimension name, so that global dimensions are easier to find in the front-end tool (Excel, Power BI). Example below includes (dim).
    - ii. Click **Add dimension** to add the company dimensions and map it to corresponding global dimension. Mapping is done automatically, but you can manually change it if needed. (delete the dimension by clicking the X button next to the dimension name
    - iii. Continue adding and mapping dimensions for other selected companies. Only click Initialize global dimension if there are additional dimensions that are not present in the first company.

2. Click **Next**.



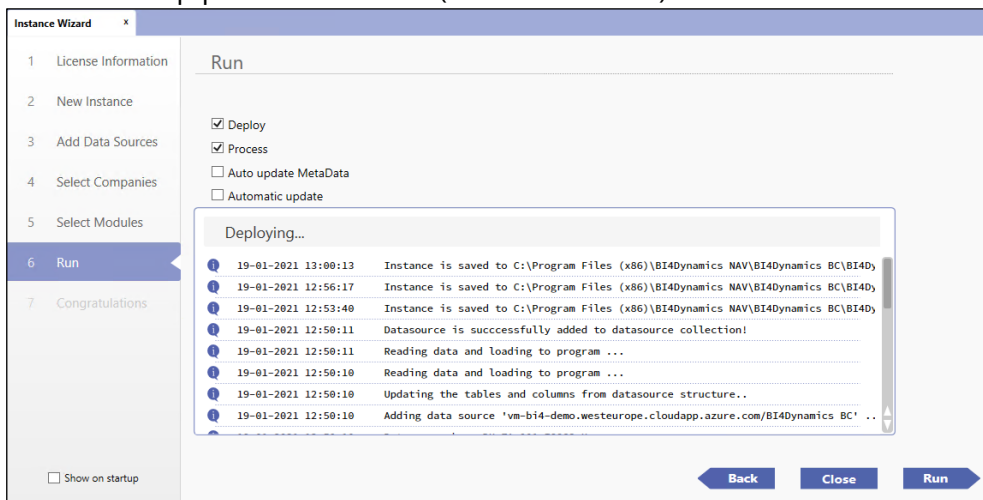
### Step 5: Selecting Modules

Select **Modules** you would like to apply to your instance:



Click **Next**.

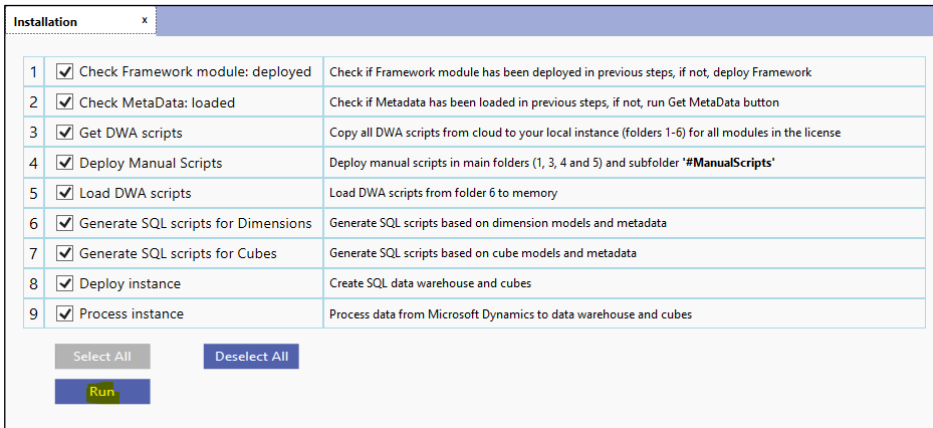
In the last step please click **Close** (do not click **Run**)



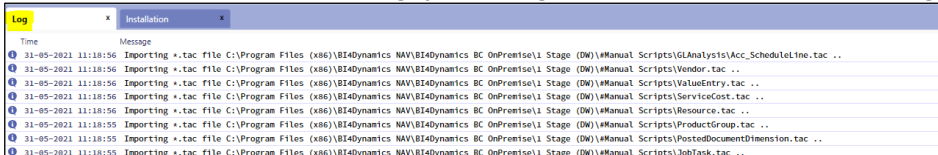
Move to **Install tab** and click **Installation** button.

## Step 6: Installing and processing Data Warehouse and Analytics

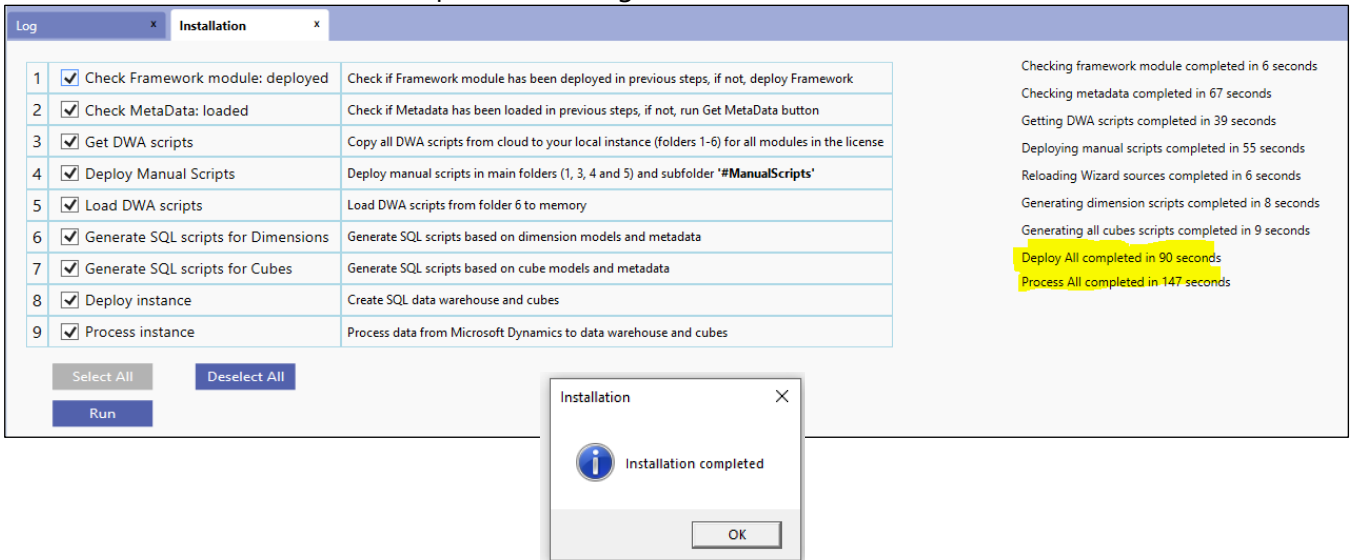
Move to **Install tab** and click **Installation** button.



Click **Run** - while this is running, you can go and check execution on Log tab:



and wait for the "Installation Completed" message.



You have successfully installed and processed data warehouse and analytics.

## 2. Implementation option for Azure Analysis Services

When you choose to install analytics as Azure Analysis Services, you need to install following:

- Azure Analysis Service in Azure portal
- On-Premises Gateway on your BI server

We recommend to first install On-premises Gateway and later Azure Analysis Services as we enter parameters from on-Premises gateway to Azure Analysis Service settings.

### 2.1. Installing On-premises Data Gateway

On-premises data gateway is needed when connecting to Azure Analysis Service. This requires two steps:

1. Install On-premises data gateway on local computer
2. Configure On-premises data gateway field in Azure Analysis Services by selecting the On-Premises data gateway

#### Install On-premises data gateway on virtual machine

##### Download On-premises data gateway to virtual machine

Download On-premises Data gateway from Microsoft site:

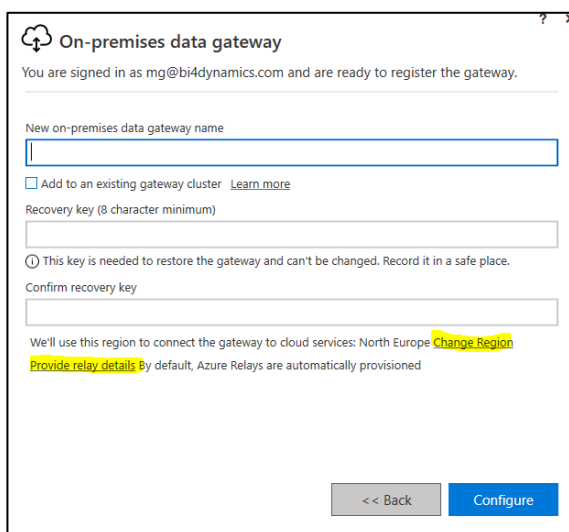
<https://www.microsoft.com/en-us/download/details.aspx?id=53127>

##### Install On-premises data gateway

Follow the documentation from Microsoft site:

<https://docs.microsoft.com/en-us/data-integration/gateway/service-gateway-install>

Note: Please be very careful when selecting the right region. Installation process will set On-Premises Gateway to your default region, that may not be the same as Azure Analysis Services. The feature is not so exposed during installation so it can easily go unnoticed.



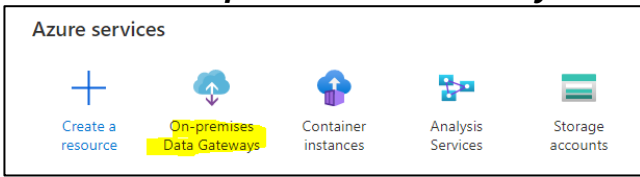
The screenshot shows the 'On-premises data gateway' configuration page. At the top, it says 'On-premises data gateway' and 'You are signed in as mg@bi4dynamics.com and are ready to register the gateway.' Below this is a text input field for 'New on-premises data gateway name'. There is a checkbox for 'Add to an existing gateway cluster' with a 'Learn more' link. A 'Recovery key (8 character minimum)' field is present, with a note: 'This key is needed to restore the gateway and can't be changed. Record it in a safe place.' Below that is a 'Confirm recovery key' field. A message states: 'We'll use this region to connect the gateway to cloud services: North Europe' with a 'Change Region' link. A note at the bottom says: 'Provide relay details: By default, Azure Relays are automatically provisioned'. At the bottom of the form are two buttons: '<< Back' and 'Configure'.

If you have set the wrong Region, and your Gateway does not appear in the available list of gateways of your Azure Analysis Services than you must re-install On-premises data gateway.

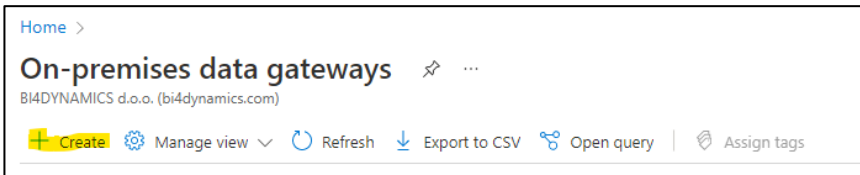
## Setup On-premises Data Gateway as Azure Service

Go to **Azure portal**

Click on icon **On-premises Data Gateway**



Click on **+ Create**

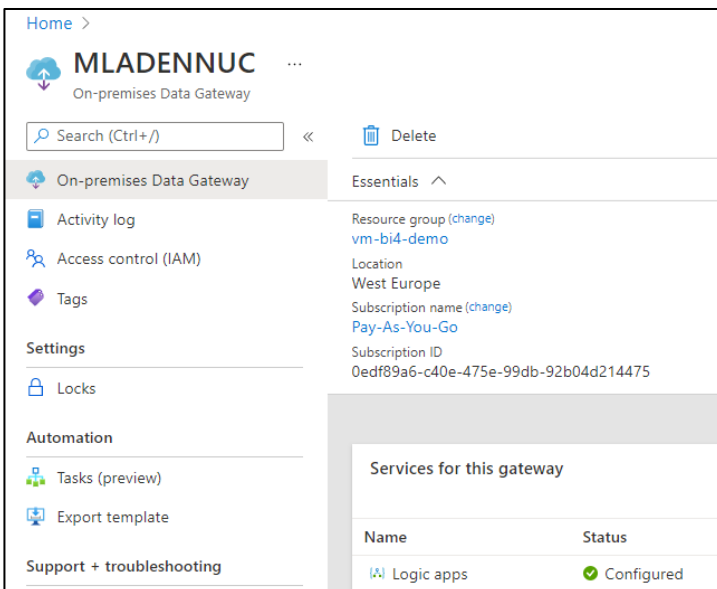
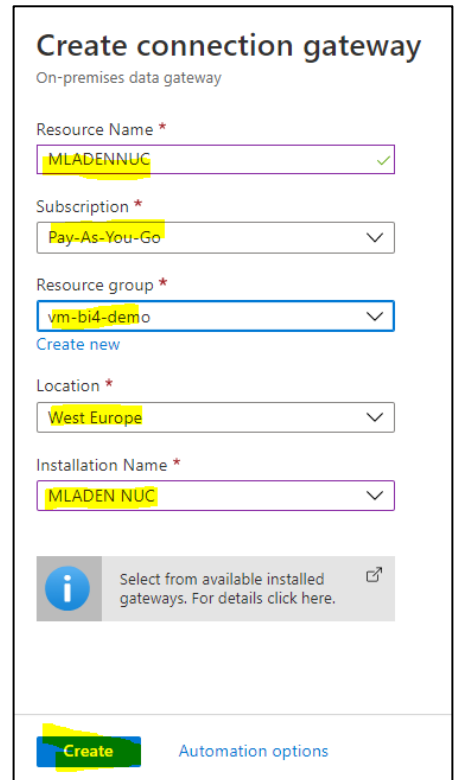


Enter all fields:

- **Resource name**
- **Subscription**
- **Resource group**
- **Location**
- **Installation name:** select on-premises gateway that you have created in previous step from the list of available gateways

Then click **Create**

Click **Go to Resource:**

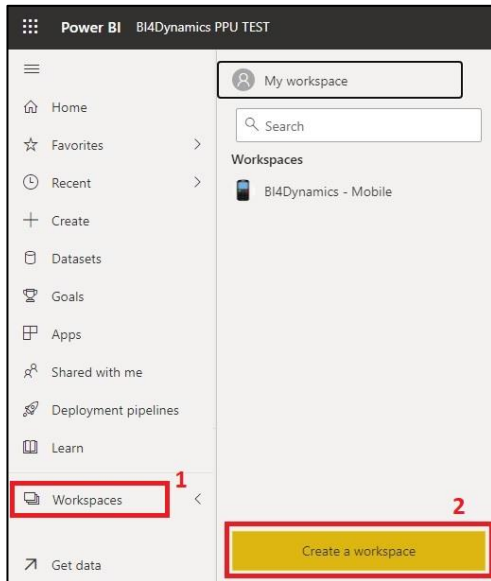


You have successfully created an On-premises Data Gateway as Azure Service.

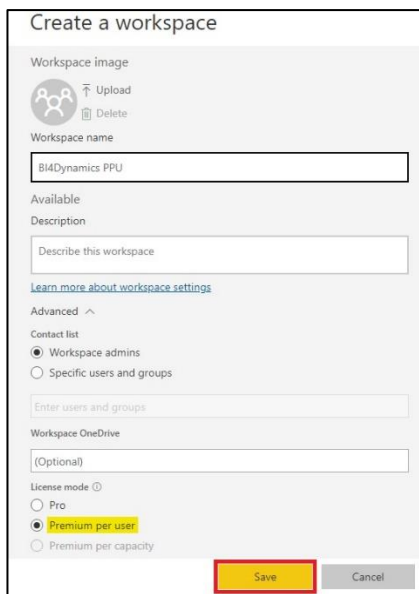
On-premises Data Gateway must be selected on Azure Service like Azure Analysis Services that will use this gateway to receive On-premises data.

## 2.2. Creating Power BI Premium workspace

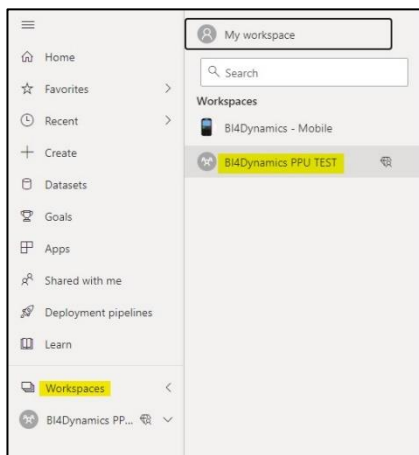
1. Open Power BI portal, press **Workspaces** and **Create a workspace**.



2. Name the workspace and select **Premium per user** under **License mode**

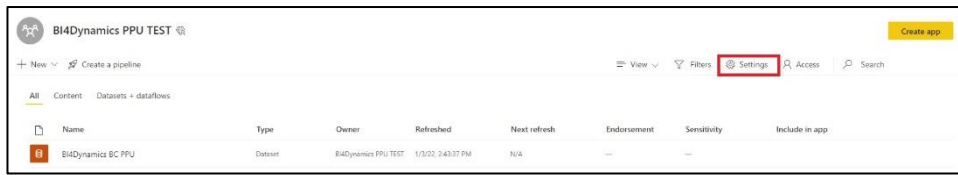


3. Navigate to your **Workspace**



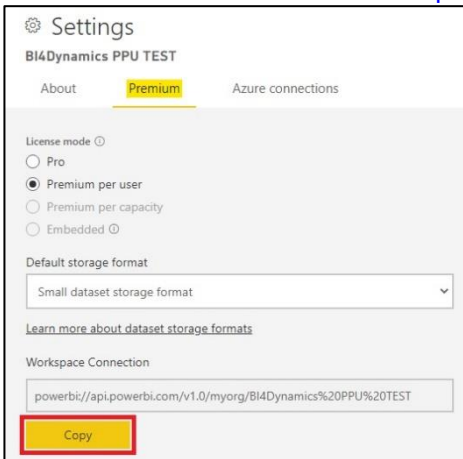


4. Press **Settings** button



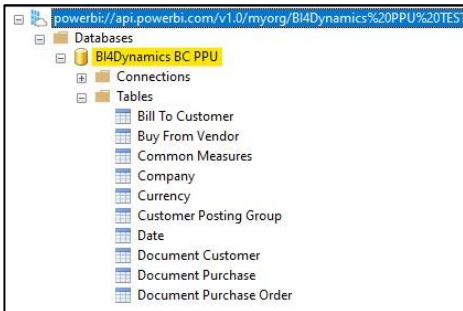
5. Select **Premium** tab and **Premium per user option** and copy **Workspace Connection**.

Link should look like that: [powerbi://api.powerbi.com/v1.0/myorg/BI4Dynamics%20PPU%20TEST](https://powerbi://api.powerbi.com/v1.0/myorg/BI4Dynamics%20PPU%20TEST)

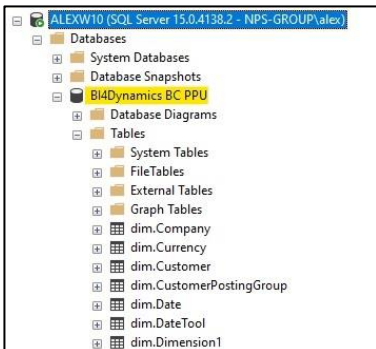


### 2.3. Completing Power BI Premium option installation

Open **SQL Server Management Studio** and connect to Power BI workspace. Newly created analysis database should have tables, which are currently still empty since data is not yet processed.

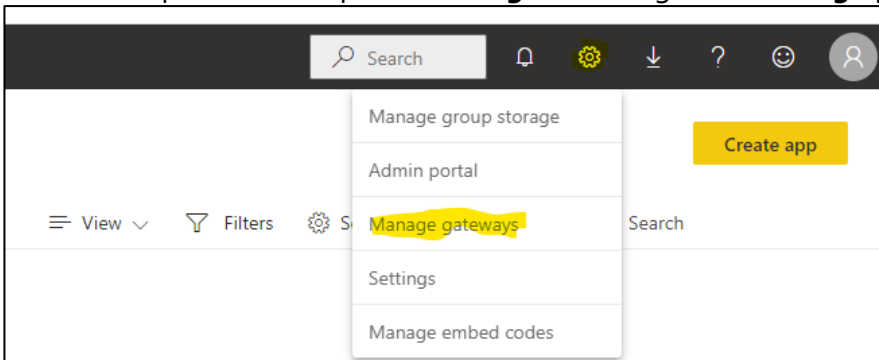


Connect to local Database SQL server to check that instance database has been created.

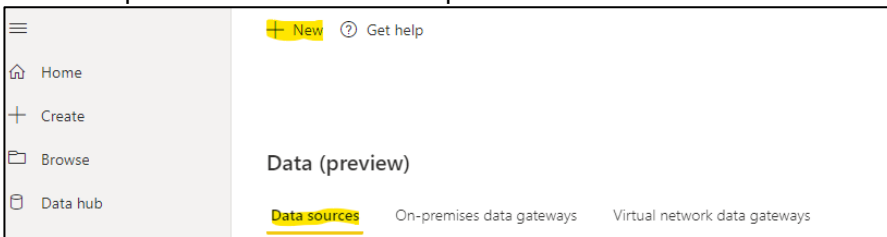


The next step is to add this database as datasource.

To do that open Power BI portal **Settings** and navigate to **Manage gateways**.



Choose option **Data Sources** and press **+New**.

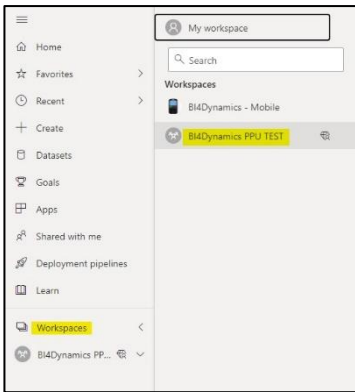


Then fill in the following:

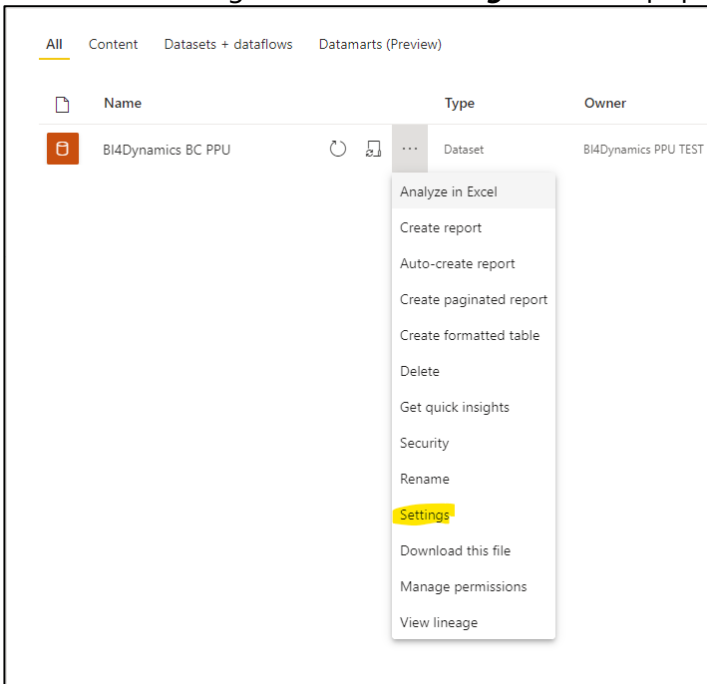
- Choose **Gateway cluster name** (created during installation of **On-premises data gateway**)
- Specify the **Database** and **Data Source names** (in our case they are the same for simplicity)
- Choose **Data Source Type** as **SQL Server**
- Specify your local **Server name**
- Enter **Authentication method** as **Windows** and **insert your credentials**
- Click **Create**

Make sure that connection was established successfully.

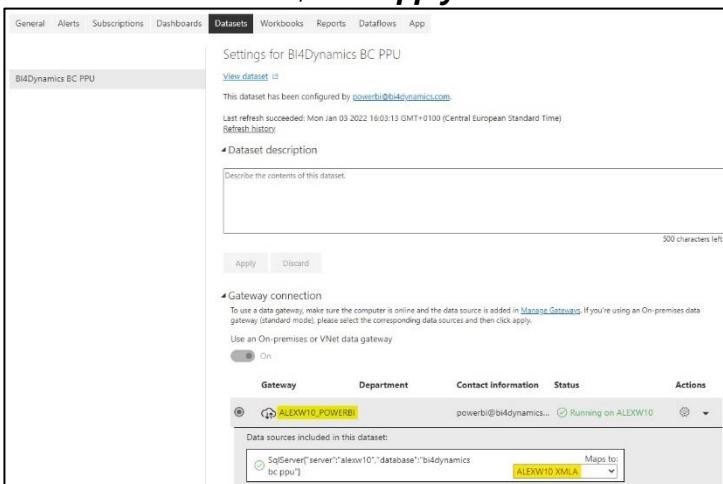
Relate Power BI database with gateway datasource. To do that navigate to your workspace.



Press three-dot sign and select **Settings** from the pop-up menu



Under **Gateway connection** select the gateway you have installed on your computer and map gateway to the datasource used, click **Apply**.



You have successfully created Gateway Connection

## 2.4. Installing Azure Analysis Services

Analysis Services can be deployed on:

- A. **Same computer** that is hosting Data Warehouse (VM or Local Server)
 

Use this for BI development instance and when users connect to service that is running in LAN (local area network)
- B. As **Azure Analysis Services**

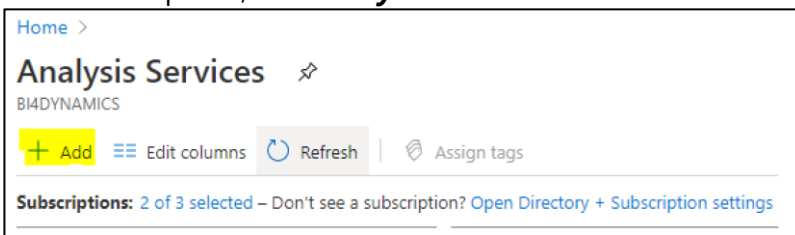
Use this option (also described as **Hybrid** option) for most Production environments where users connect to service with AAD (Azure Active Directory).

In this chapter option B is described.

### Create Azure Analysis Services

Before installing BI4Dynamics app you need to have available Azure Analysis Services that will host BI4Dynamics database.

Go to Azure portal, find **Analysis Services** and click **+Add**

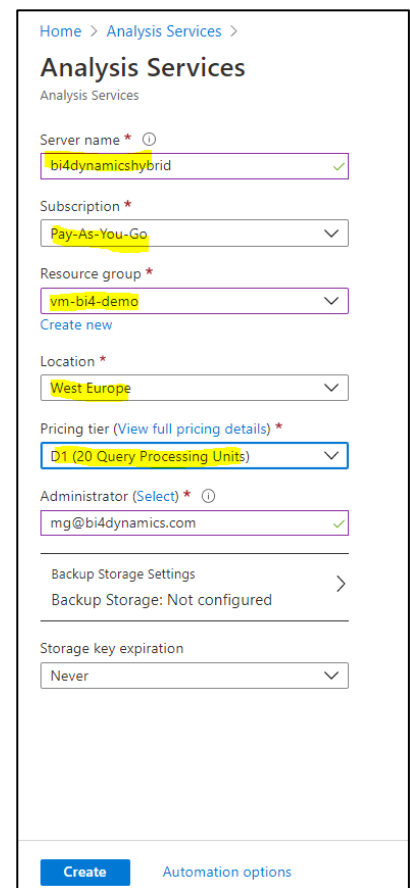
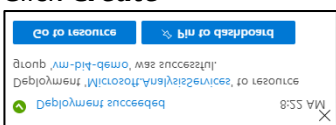


Enter the following fields:

- **Server name**: unique name of Analysis Server
  - **Subscription**
  - **Resource group**
  - **Location**
  - **Pricing tier**
- Database size (GB) will depend on data type, cardinality, and number of rows in your data warehouse
- QPU (number of processing units) will depend on database size and number of users that will query the data

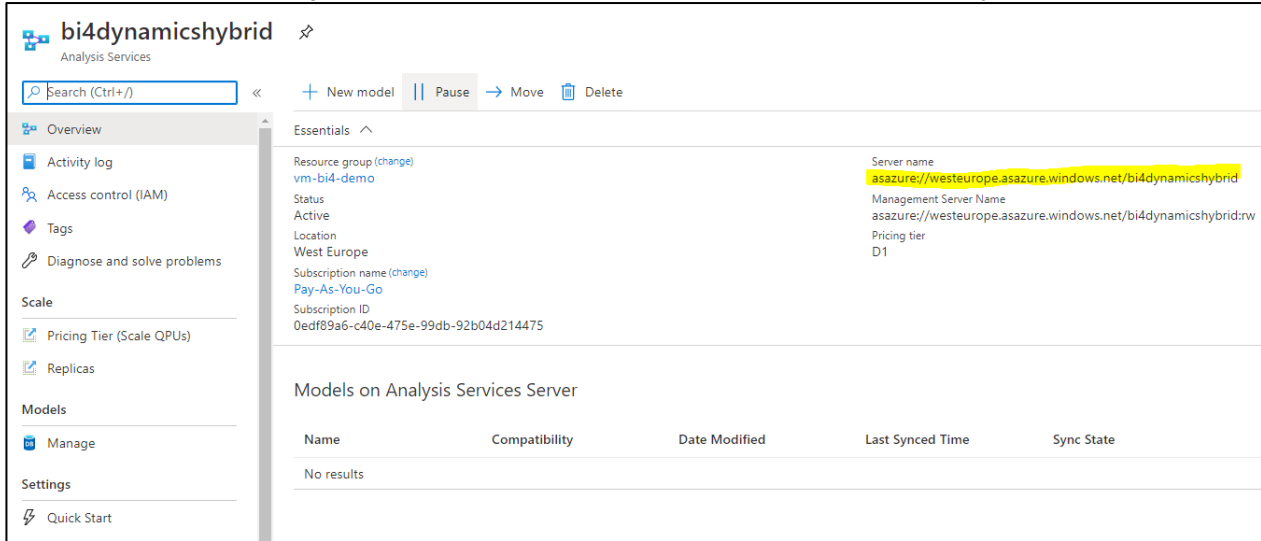
Suggestion: start with lower tier, check if data can fit into database and if response time from your BI tool (Excel or Power BI) is good enough. If not, go for higher tier. It takes 60 seconds to change tier to next level.

Click **Create**



You have successfully created Azure Analysis Services

**Go to resource** and **copy Server name** to notepad as it will be used in BI4Dynamics app installation.



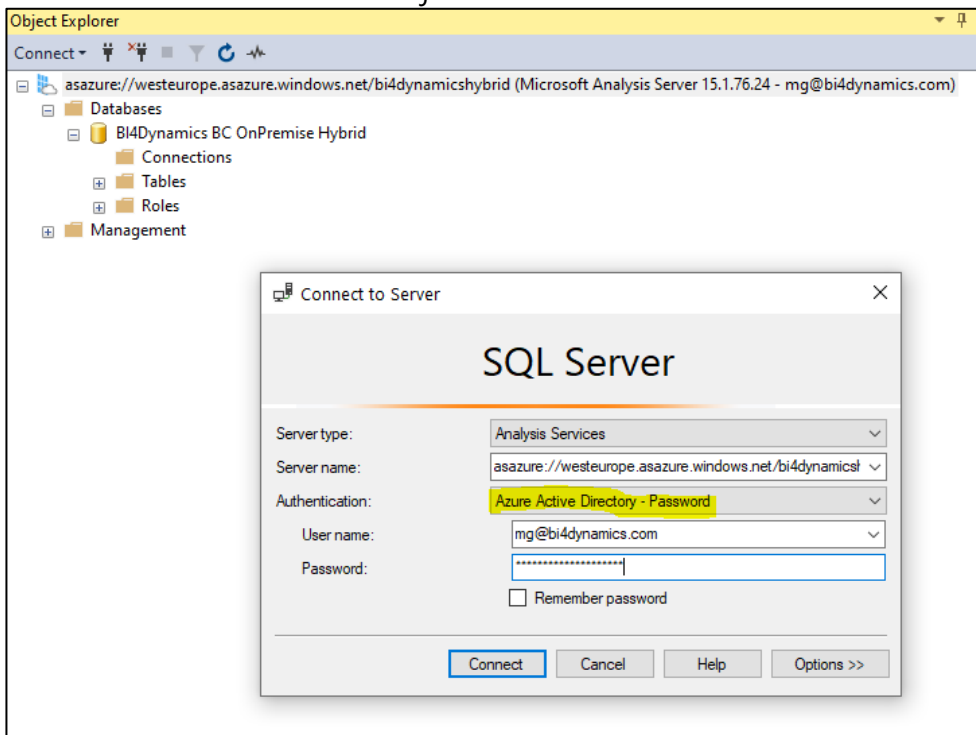
In our example server name is: **asazure://westeurope.asazure.windows.net/bi4dynamicshybrid**

### Connect to Azure Analysis Services

To verify installation, connect to **Analysis Services Server** use **SSMS** (SQL Server Management Studio) and enter:

- Type **Server Type**: Analysis Services
- Type **Server name**
- Type **Authentication**: Azure Active Directory
- Type **Username**
- Type **Password**

Here is a database that we have just created:

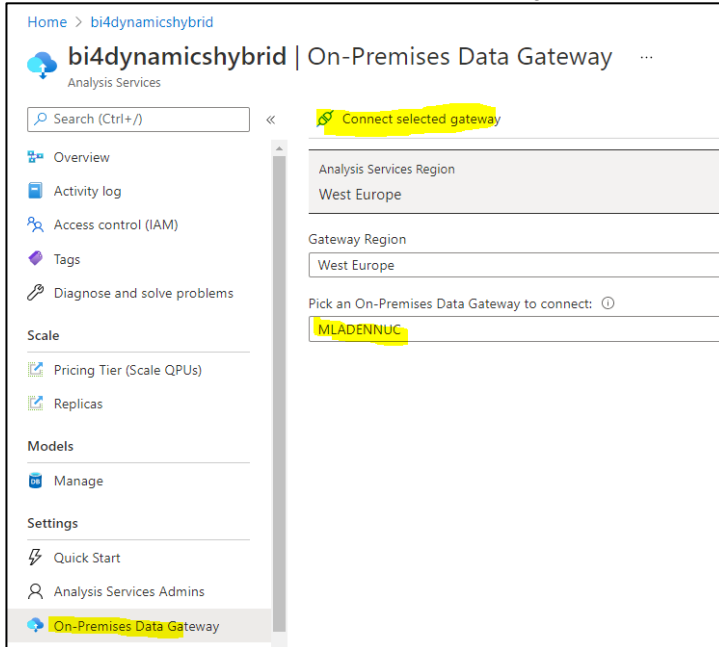


## Select On-Premises Data Gateway

On-Premises Data Gateway is needed when Azure Service received data from On-Premises. When Azure Analysis Services is receiving data from On-premises source than this option must be selected.

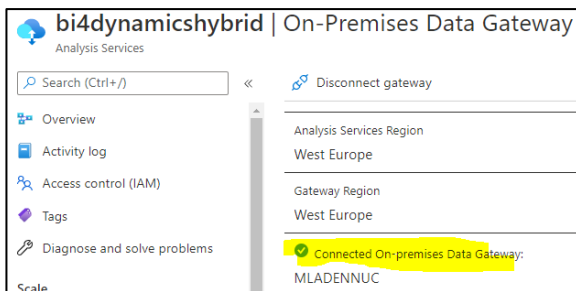
Click on **On-premises data gateway**

And **Pick an On-Premises Data Gateway to connect**



Click **Connect selected gateway**.

Gateway is now connected:

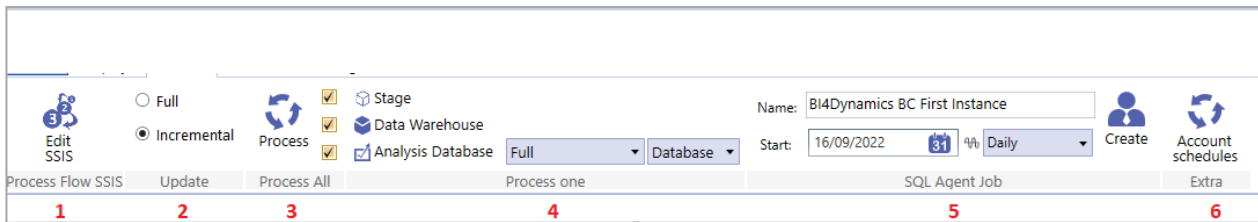


### 3. Managing instance

#### 3.1. Edit process flow

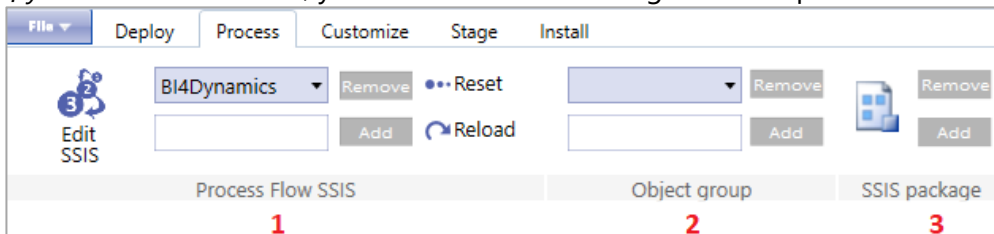
Process flow is used to determine the sequence of execution of stored procedures when processing data with BI4Dynamics. Editing process flow is completely optional and it is usually connected with custom development.

#### Explanation of process flow top form functionality



1. **Edit existing** Process flow or **Add** a new one
2. Select **Full** or **Incremental** Processing type
3. Process **All (Stage, Data Warehouse and Analysis Database)**
4. Process **just one** on the above.
5. Create **SQL Agent Job** (with the specified periodicity and start date)
6. Process only **Account Schedules** instead of entire Analysis Database

If you click on **Edit SSIS**, you will have the following tab and options on it:



1. **Reset** the Process flow (return to original state) or **Reload** Process flow (include stored procedures saved in BI4Dynamics folder structure)
2. Create a new **Object Group** (standard 1-13)
3. Add or Remove a **SSIS package** from file

## Explanation of process flow table functionality

No	Name	Custom	Include	Order	Process	Object Name	Object subgroup	Executed	Custom	Last exec time (sec)
0	SSIS	✓	✓	166	Run	[fact],[TruncateExecutionLog]	CubeFramework	✓		0
1	SnapshotDate		✓	167	Run	[fact],[TruncateEmployeeAbsence]	EmployeeAbsence	✓	✓	0
2	Snapshot		✓	168	Run	[fact],[LoadEmployeeAbsence]	EmployeeAbsence	✓	✓	0
3	DimDate		✓	169	Run	[fact],[TruncateFAEntry]	FAEntry	✓	✓	0
4	DimHelp		✓	170	Run	[fact],[LoadFAEntry]	FAEntry	✓	✓	0
5	DimLoadBefore		✓	171	Run	[fact],[TruncateMaintenanceEntry]	MaintenanceEntry	✓	✓	0
6	DimLoad		✓	172	Run	[fact],[LoadMaintenanceEntry]	MaintenanceEntry	✓	✓	0
7	DimLoadAfter		✓	173	Run	[fact],[TruncateMaintenanceRegistration]	MaintenanceRegistration	✓	✓	0
8	FactDropConstraintIndex		✓	174	Run	[fact],[LoadMaintenanceRegistration]	MaintenanceRegistration	✓	✓	0
9	FactHelp		✓	175	Run	[fact],[TruncateAccountSchedule]	AccountSchedule	✓	✓	0
10	FactLoadBefore		✓	176	Run	[fact],[LoadAccountSchedule]	AccountSchedule	✓	✓	0
11	FactLoad		✓	177	Run	[fact],[LoadAccountScheduleMany]	AccountSchedule	✓	✓	0
12	FactLoadAfter		✓	178	Run	[dim],[UpdateCustomRollupCalculation]	AccountSchedule	✓	✓	0
13	FactCreateConstraintIndex		✓	179	Run	[fact],[TruncateAccountScheduleCostAccounting]	AccountScheduleCostAccounting	✓	✓	0

### 1. Object group name.

All stored procedures **within** object group are executed before the next Object group is executed. Each Object group forms a separate **SSIS package** which is executed on processing.

### 2. Select/unselect a stored procedure to be executed on processing

### 3. Run the stored procedure manually from the application

### 4. Object subgroup name. Stored procedures within an Object subgroup are executed **successively**, while different Object subgroups within same Object group are executed **in parallel**.

### 5. Rename Object Subgroup option

## Moving stored procedure from one object group to another

**Right-click** on a stored procedure gives you an option to **move** it to a different **Object group** if needed (on reset Process flow the stored procedure will be moved back to original Object subgroup).

## Setting up process flow property manually in stored procedure

**Permanently moving** a stored procedure to a different Object group is possible by adding a **DECLARE** clause in the stored procedure itself:

```
EXEC dbo.DropObject 'fact.LoadInventoryState', 'P'
GO

CREATE PROCEDURE fact.LoadInventoryState
    @InsertedRowCount int = 0 OUTPUT,
    @Output nvarchar(max) = NULL OUTPUT
AS
    DECLARE @ObjectGroup nvarchar(255)='FactLoadAfter'
```

By adding or changing declare statement store procedure's execution flow is determined.

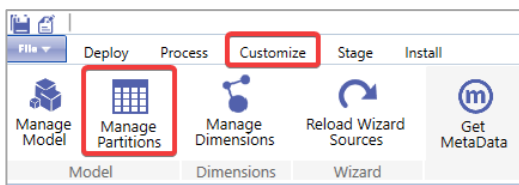


## 3.2. Manage Partitions

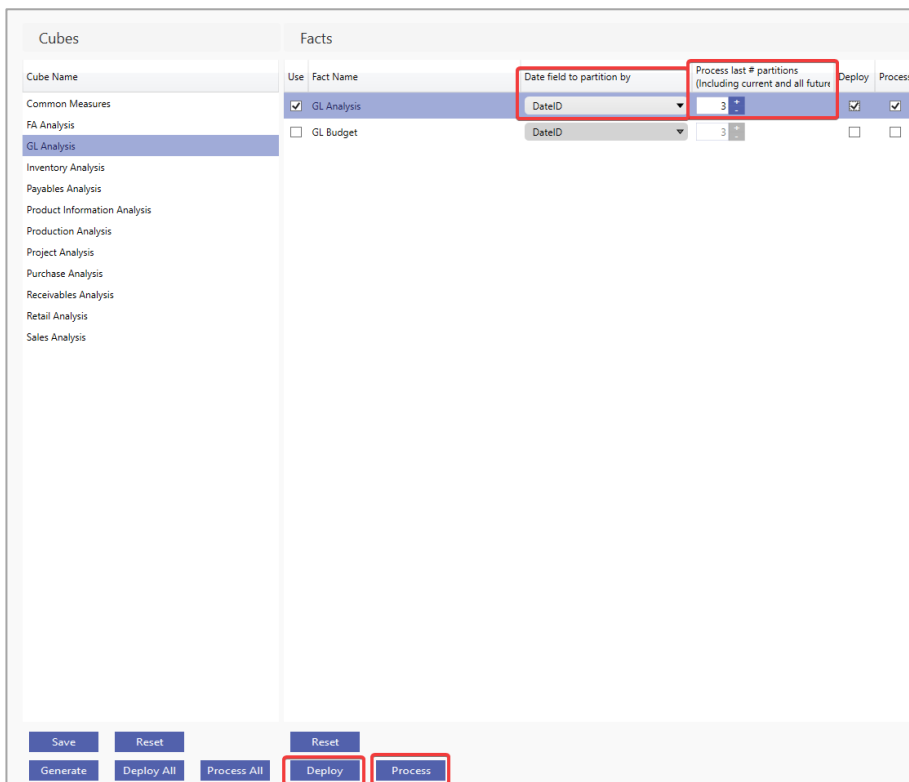
Partitions divide portions of data you need to process (refresh) frequently from data that can be processed less frequently. For example, a fact table may include certain row sets that contain data that rarely changes, but other row sets have data that changes often. There's no need to process all the data when only a portion of it needs to be processed.

Partitions work by dividing a table into logical partition objects. Individual partitions, each containing a unique segment of data, can then be incrementally processed either sequentially or in parallel independent of other partitions, or excluded from processing operations altogether.

This feature can be only used with SQL server enterprise edition or with Power BI Premium.



1. Open the **Customize** ribbon
2. Select **Manage Partitions**



1. Select the Cube.
2. Select the **Fact**.
3. Select the **Date field to Partition by**.
4. Select the **number of last partitions processed** (this is determined by how much backdating is done).
5. **Deploy** the fact.
6. **Process**.

### 3.3. Setup BI4Dynamics precision

Numeric data types can be stored in SQL with different precision, scale, and length. Precision is the total number of digits that can be stored both to the left and right of the decimal place. Scale is the number of digits to the right of the decimal point in a number. Length is the number of bytes that are used to store the number.

In SQL the default maximum precision and scale for a particular length is the following:

- 19,5 = 9 bytes
- 27,10 = 13 bytes
- 38,20 = 17 bytes

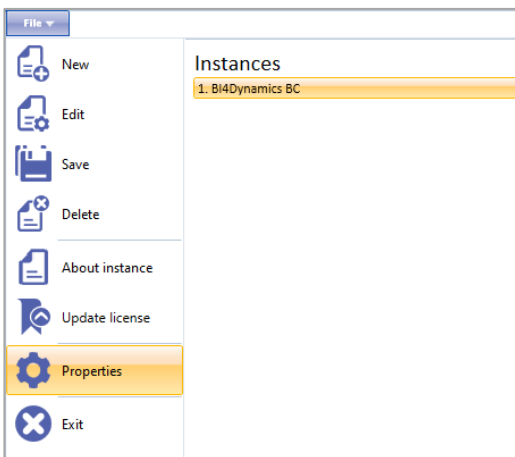
During the installation, the following error might occur on stage:

Some errors occurred during executing package SSIS Stage: [G\_L Entry].[dtsx].  
Detail msg: Arithmetic overflow error converting numeric to data type numeric.!

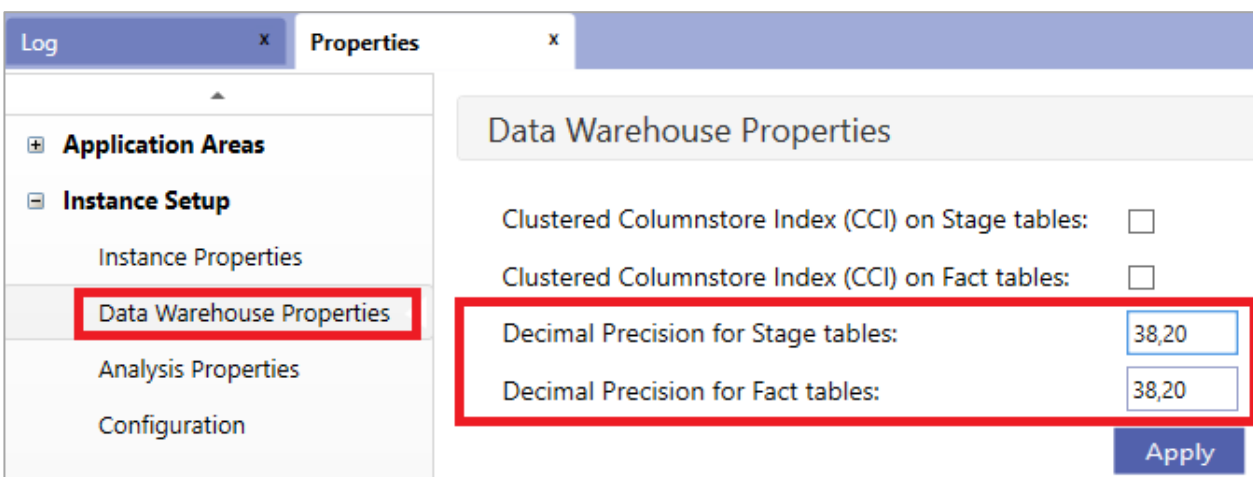
It should be addressed by increasing the precision (e.g. from 19 to 38) and scale (e.g. from 5 to 20). The default maximum precision of numeric and decimal data types is 38.

To change it in application you need to:

1. Open the instance and click **File > Properties**.

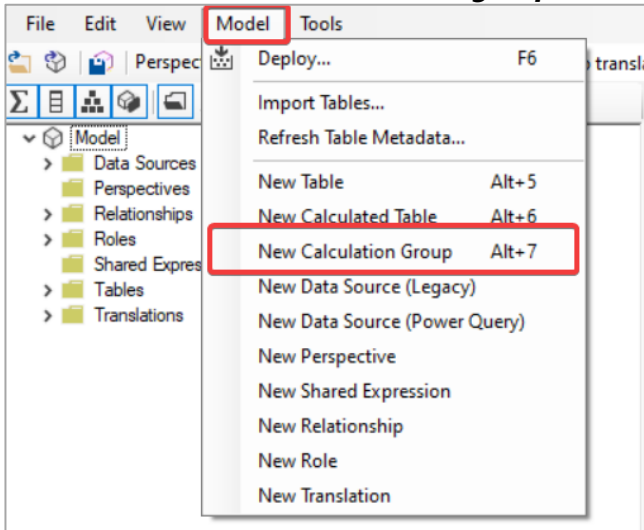


2. Under **Instance Setup > Data Warehouse Properties** precision could be set up for:
  - Stage tables
  - Datawarehouse tables

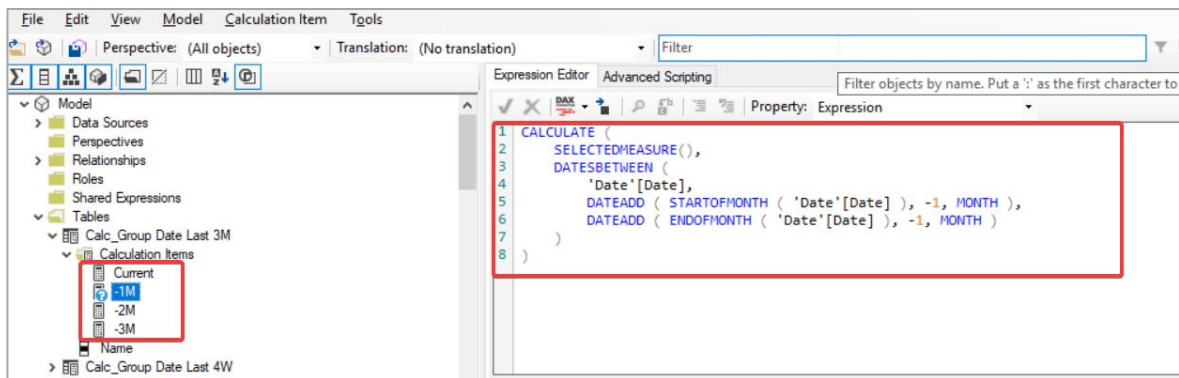


### 3.4. Adding Calculation groups

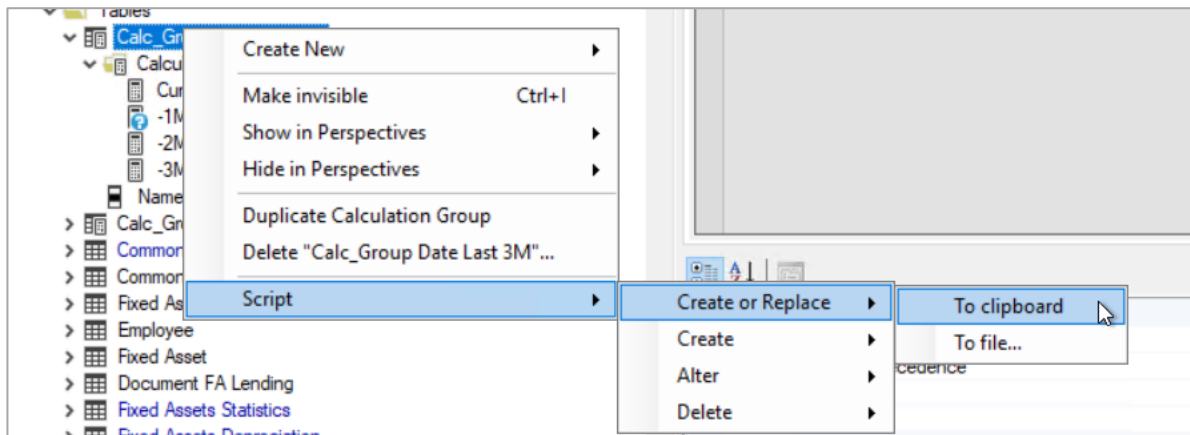
1. Open **Tabular editor**
2. Go to **File > Open > From DB**
3. Select the **Server** and **Instance** where you want to create calculation groups
4. Select **Model** and **New Calculation group**



5. Add **new Calculation items** with DAX query

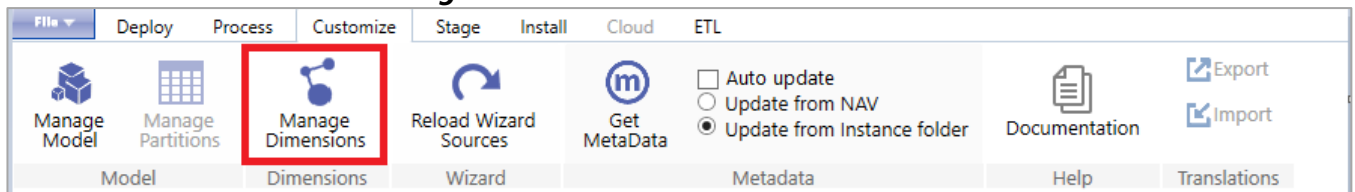


6. Right click the new Calculation group, select **Script > Create or Replace > To Clipboard**

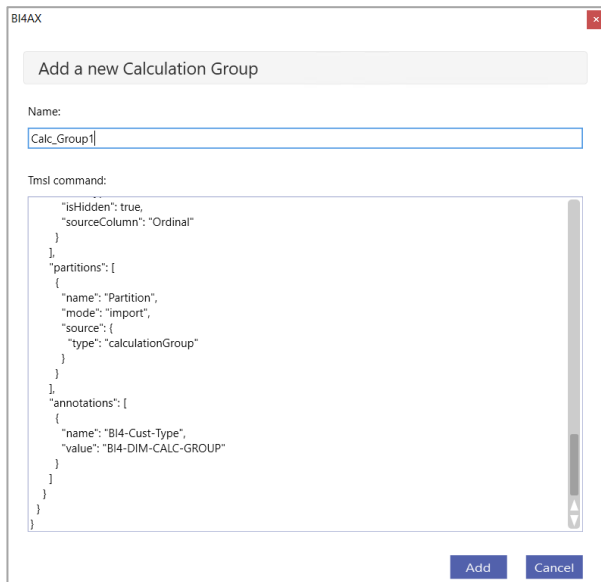


7. Open **BI4Dynamics application** and **open instance**

8. Go to **Customize** tab > **Manage Dimensions**



9. Select **New Calc. Group**, add a **name** and copy the **script**



10. **Update** and **Generate all** under Calculation groups

11. **Deploy** and **Process analysis database**

### 3.5. Deleting instance

1. Open the instance you would like to delete by clicking **File** and selecting the instance in the list on the right.
2. Click **File > Delete**.
3. Click **Yes** to confirm the action.

**IMPORTANT!** When deleting an instance, the Data Warehouse and Analysis Database will be deleted.

*Note: BI4Dynamics Instance folders and the log file are not removed during the delete process.*

Uninstalling BI4Dynamics

1. Click **Start > Settings > Control Panel**.
2. Click **Add or Remove Programs**.
3. From the list of installed programs, select **BI4Dynamics**.
4. Click **Remove**.
5. Follow the instructions on screen.

**IMPORTANT!** User files will not be removed when uninstalling the solution.

## 4. Connecting Excel and Power BI reports

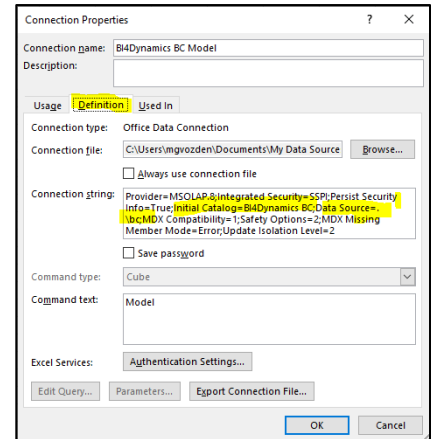
### 4.1. Downloading Excel and PowerBI reports

1. **Open** Instance
2. Go to **Install** tab
3. Click **Download reports**
4. Select the destination
5. **Standard reports** will be downloaded that are included with BI4Dynamics

### 4.2. Connecting Excel reports

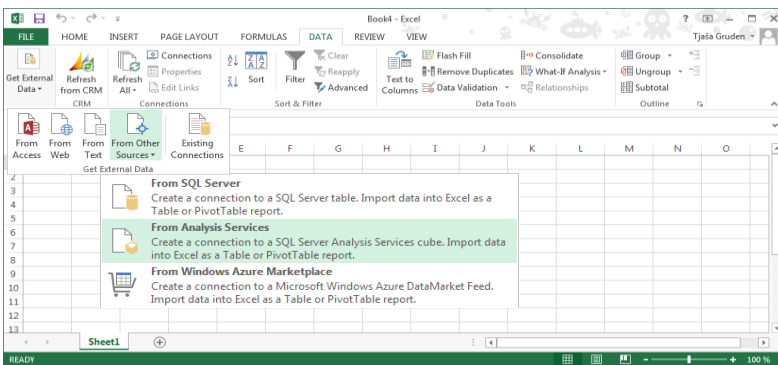
#### Changing connection

1. **Open** Excel report
2. Click **Data > Connections > Properties > Definition**
3. Type the **database name** to the **Initial Catalog** property of the **Connection string**. Type the **Server name** to the **Data Source** property of the **Connection string**.

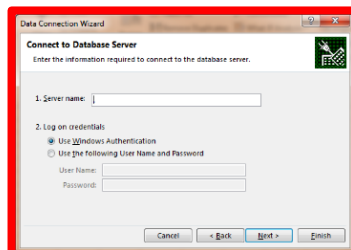
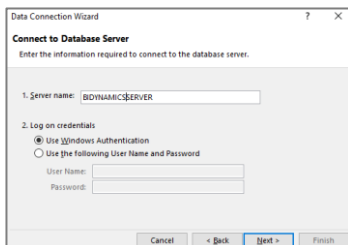


#### Creating a new connection

4. **Open** Microsoft Excel
5. Click **Data > Get External Data > From other Data Source > From Analysis Services**.

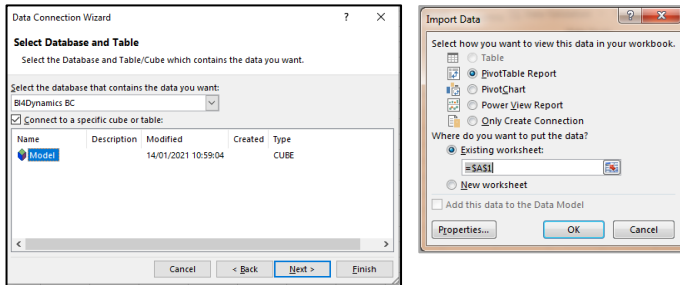


### 6. Insert a Server name



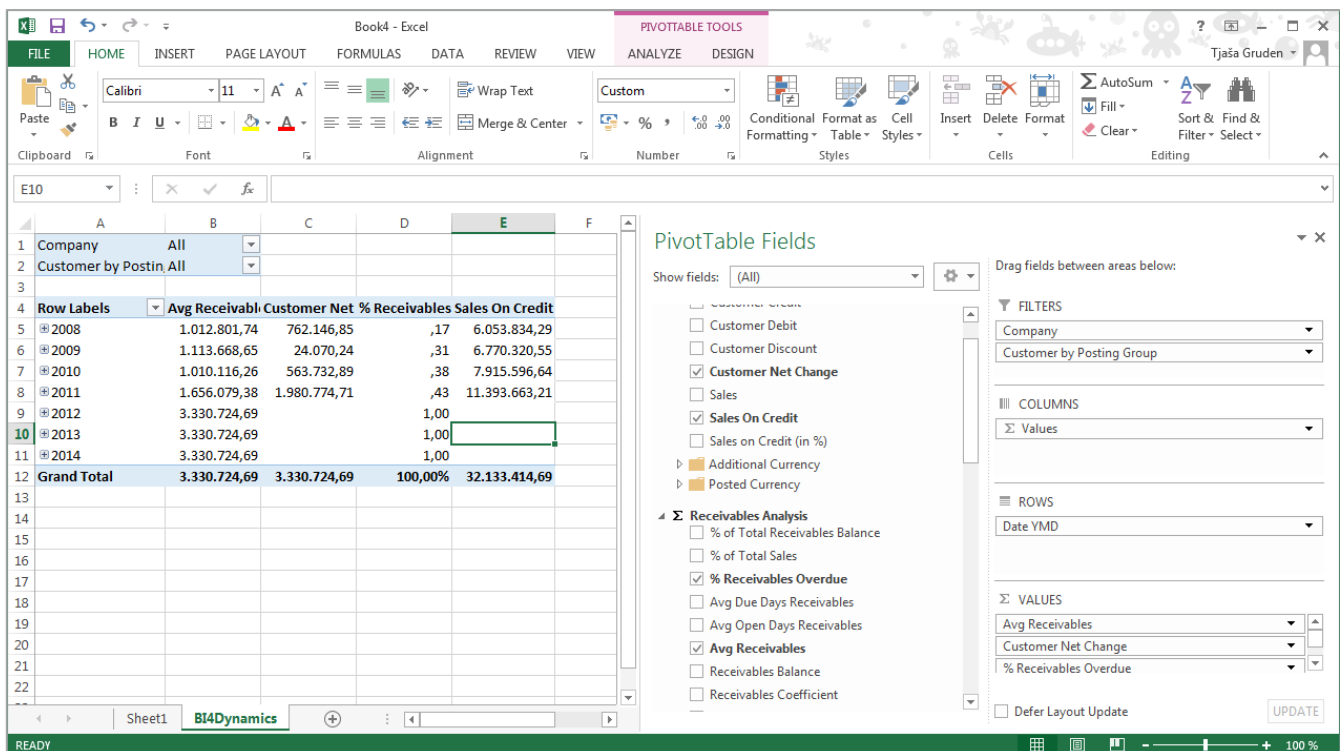
do not enter "." for local server as this connection will not work on another PC

7. Click **Next** and select **Analysis database** from the dropdown menu and select **Model**



8. Click **Finish** and **OK** on next form.

9. Start exploring your data by dragging and dropping dimensions and measures in pivot table

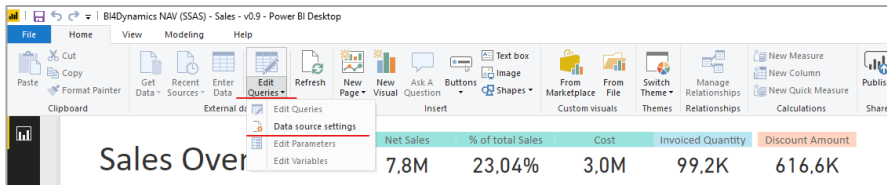


You have successfully connected Excel to Analysis Services model.

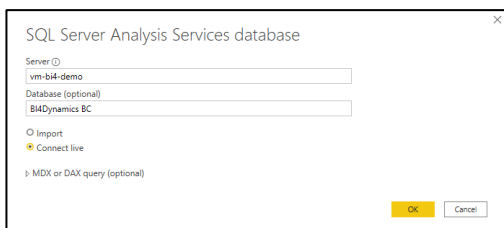
### 4.3. Connecting Power BI reports

#### Changing connection

1. **Open** Power BI report
2. Click **Edit Queries > Data source settings**

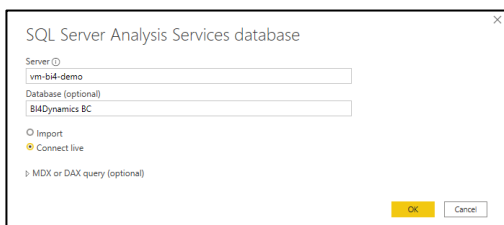


3. Type the **Server name** to the **Server** field. Type the **Database name** to the **Database** field



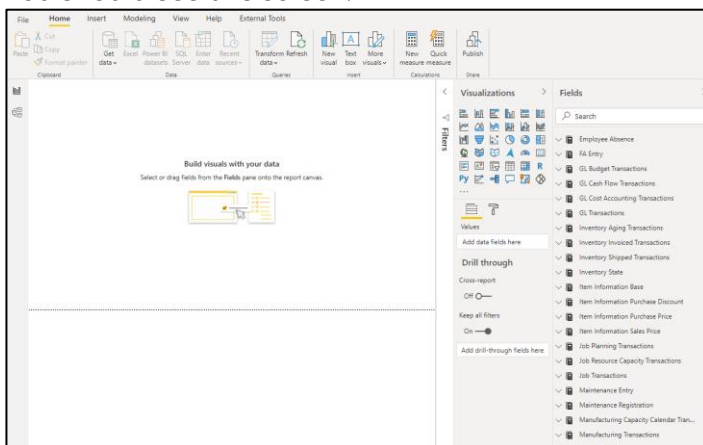
#### Creating a new connection

4. **Open** Power BI Desktop
5. Click Get data
6. Choose **Analysis Services**
7. Type the **Server name** and **Database name**
8. Choose **Connect live**



9. Click **OK** and start exploring your data

You should see this screen:



You have successfully connected Power BI to Analysis Services model.