

BI4Dynamics Application

Installation Manual for Dynamics 365 Finance and Operations on-premises

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1. Installation

Installation documentation covers installation of BI server on-premises.

1.1. Prerequisite

1.1.1. Information about RDP connection and Azure Analysis Services

RDP and D365 F&O credentials must be provided ahead of time, Azure Analysis Services are a result of infrastructure installation (fields here are for example only):

Azure Analysis Services (optional):

| Description | Value |
|-------------------------|--|
| Azure Analysis Services | asazure://westeurope.asazure.windows.net/bi4dynamicshybrid |
| Username (AAS admin) | mg@bi4dynamics.com |
| Password | Qpewoicsj490wkss |

RDP credentials:

| Description | Value |
|-----------------------------|----------------------|
| RDP Public IP (or RDP file) | 51.132.66.72 |
| Admin Account | admin-user |
| Admin Account Password | 6!dJ2yS34MbbQiPHs@rd |

1.1.2. D365 F&O credentials

| Description | Value |
|------------------------------|--|
| D365 F&O Admin User | adminuser@bi4dynamics.onmicrosoft.com |
| D365 F&O Admin User Password | rtPxXqxJ2IkOIJFR9Eki#8 |

1.2. Installing BI4Dynamics application

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

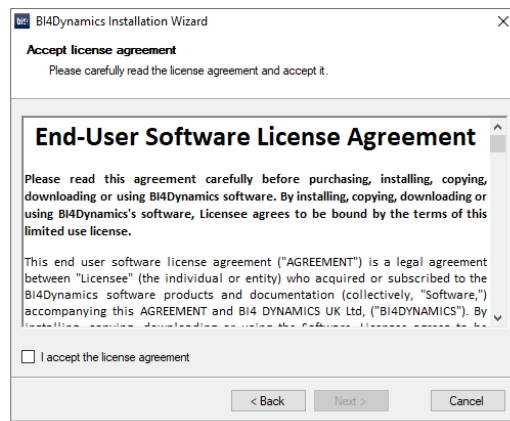
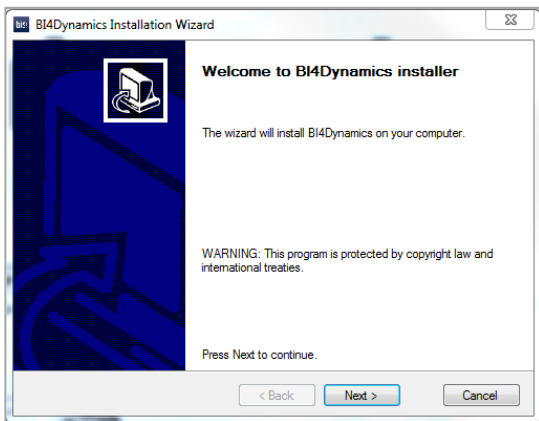
IMPORTANT! The installation process must be started on a server where BI4Dynamics Data Warehouse will be created.

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

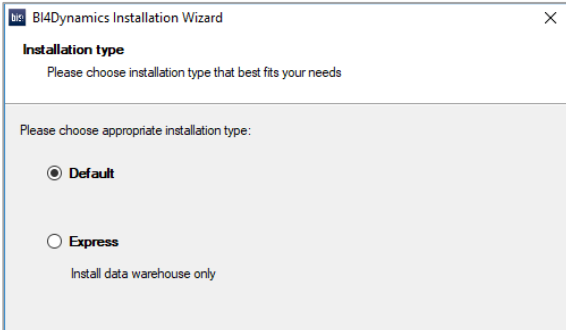
**Always start BI4Dynamics as an administrator.*

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

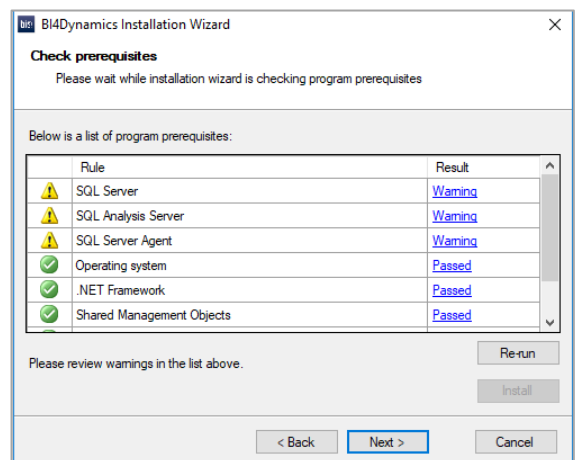
2. Follow the instructions on screen and accept the license agreement.



3. Choose Default or Express option

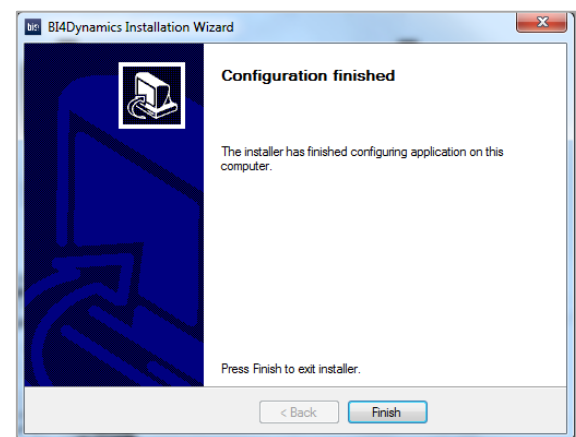
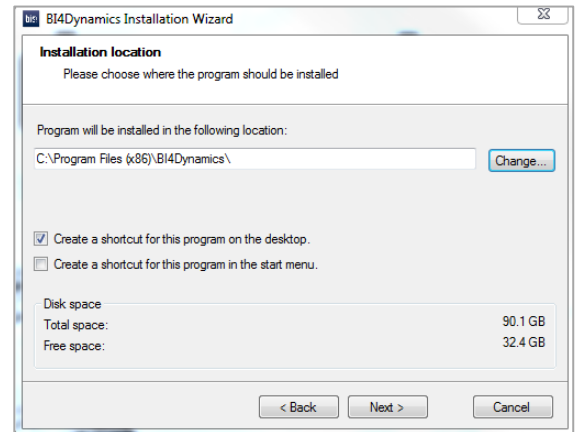


4. The installer will check for some of the prerequisites. If any of the tests will fail you can click on the result to see the error. You must fix the problem before repeating the test. Once all the tests are successfully completed you can continue with the installation.



5. If a correct version of Shared Management Objects, Analysis Management Objects or .NET Framework is 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. Click **Next**.
7. Confirm the configuration and begin the installation of BI4Dynamics.
8. Click **Finish** after the installation is completed.



1.3. Creating BI4Dynamics instance

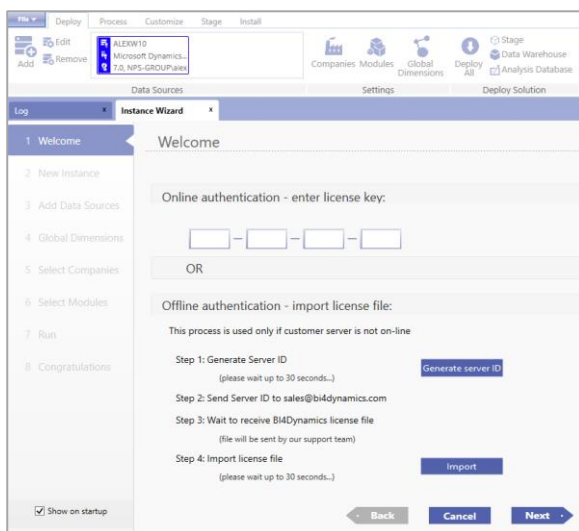
Deploying a BI4Dynamics solution is a seven-step process:

1. Providing license information
2. Creating an instance
3. Adding the data sources
4. Selecting global dimensions
5. Selecting companies
6. Selecting Framework module
7. Completing installation

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

1.3.1. Step 1: Providing license information

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

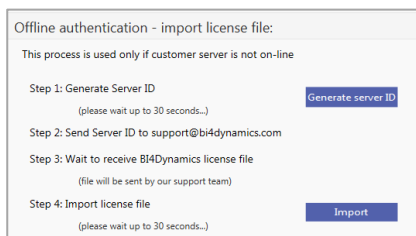


Note: BI4Dynamics is 64-bit application, but the default installation location is C:\Program Files (x86)\BI4Dynamics AX. Application can also be started from the Desktop shortcut or from the Start Menu shortcut.

- 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.

- 4) Click **Next**.

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

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** (Use local server name).
5. Select or Type in the **SQL Server Instance** name where the BI4Dynamics Data Warehouse will be deployed.

6. **Authentication** type: **Windows**

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.

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

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

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

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** (Use local server name).
5. Select or Type in the **SQL Server Instance** name where the BI4Dynamics Data Warehouse will be deployed.

Azure Analysis Services

- **SQL Analysis Server name:** enter the name of the Azure Analysis Services (see in Chapter 2)
- **Authentication:** Azure Active Directory
- **Username:** email of the admin user (adminuser@domain.com) that has been entered when creating Azure Analysis Services
- **Password:** enter password for Azure Active Directory

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

Integration Services

Check **SQL Integration Service** to process BI4Dynamics using the Integration services (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 Azure Analysis Services option):

| | |
|--|---|
| Instance properties | |
| Instance name: | <input type="text" value="BI4Dynamics DFO"/> |
| Language: | <input type="text" value="English (United States)"/> |
| <hr/> | |
| SQL Server | Analysis Services |
| Database Name: | <input type="text" value="BI4Dynamics DFO"/> |
| SQL Server Name: | <input type="text" value="ALEXW10"/> |
| Authentication: | <input type="text" value="Windows"/> |
| Impersonation account: | |
| Username: | <input type="text" value="NPS-GROUP\alex"/> |
| Password: | <input type="text" value="*****"/> |
| <hr/> | |
| SQL Database File Locations | |
| Data: | <input type="text" value="D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\"/> ... |
| Log: | <input type="text" value="D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\"/> ... |
| SQL Database Collation: | <input type="text" value="Latin1_General_CI_AS"/> |
| <hr/> | |
| Integration Services | |
| SQL Integration Service | <input checked="" type="checkbox"/> |
| SSIS Server name: | <input type="text" value="ALEXW10"/> Ver. <input type="text" value="15.0"/> |
| <hr/> | |
| <input type="button" value="Refresh"/> | |

Click **Next**.

1.3.4. Step 3: Add Data Source – D365 F&O Cloud Source

This information is about adding Data Source(s) for BI4Dynamics instance.

If information about Dynamics 365 AX connector is not available at the time of installation, go to chapter **Implementation option - DFO/AX connector not available** and complete steps prescribed there **instead**.

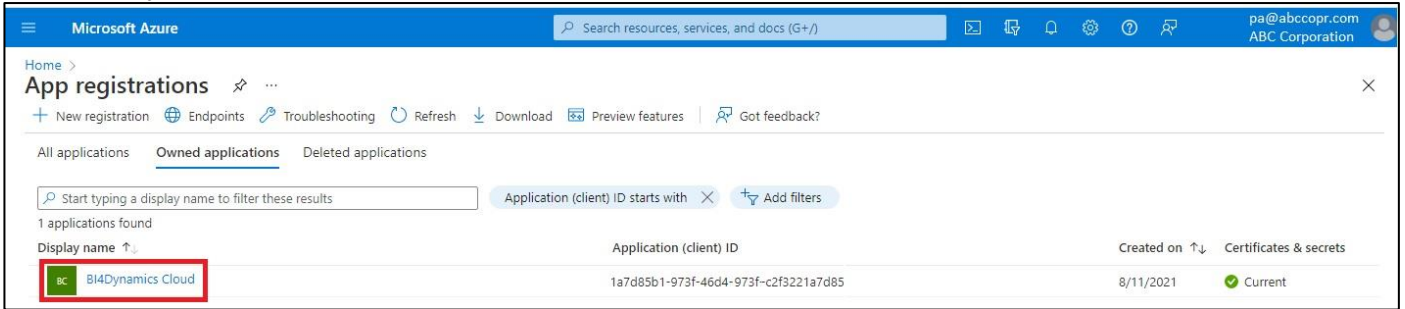
- 1) Set **Data Source Version**. For D365 F&O that would be D365 On-Premises
- 2) In the field **SQL Server Instance** select the server that is hosting the source.
- 3) Select Database from the pop-up menu of **Database Name**.
- 4) Select Windows Authentication as a method of **Authentication**.
- 5) Test connection by clicking **Test connection to SQL Database**.

1.3.5. Step 3b: Setup Dynamics 365 AX Connector

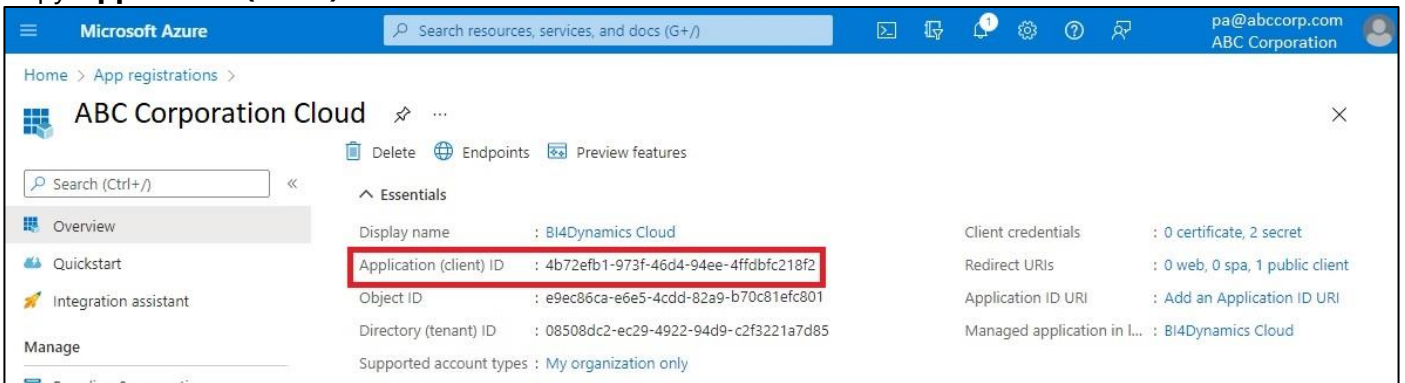
- Service hostname URL - link to Microsoft Dynamics Finance and Operations (abccorp.operations.dynamics.com).
- Tenant ID – same as Blob Tenant ID.
- Client app id

Open Azure portal and search for **App registrations**.

Select BI4Dynamics app.

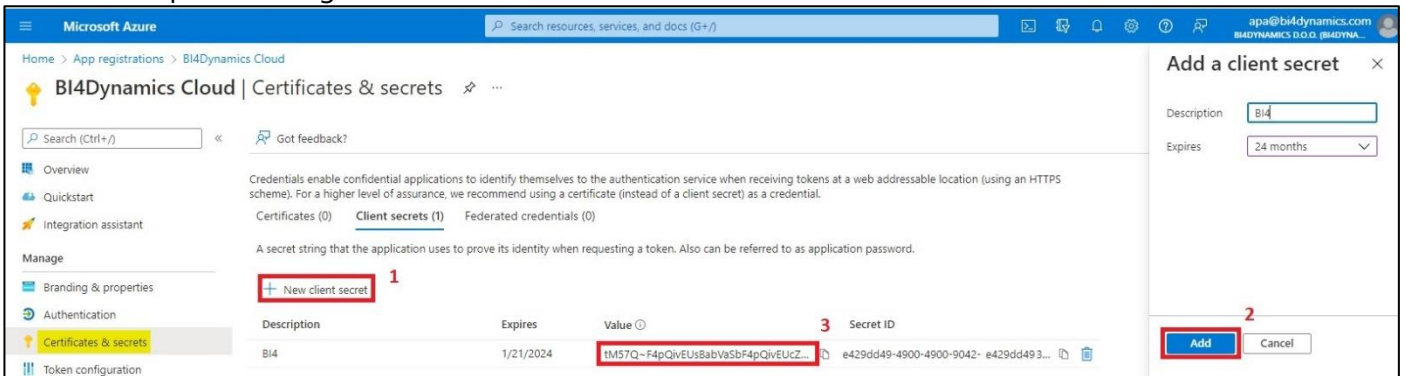


Copy **Application (client) ID** value.

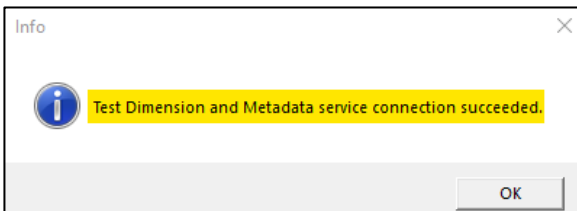


- Client secret key

Select **Certificates & secrets** from the menu on the left. Create a new client secret and save value, since it will not be possible to get it later.

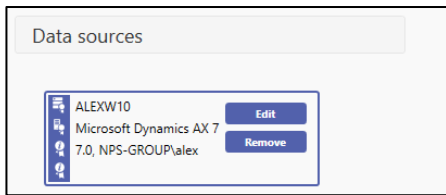


- Username & Password to Microsoft Dynamics.
- Test connection by clicking **Test connection to AX Services**. Following window should appear:



Click **Add Data Source** to add the selected data source and wait... Your screen should look like this:



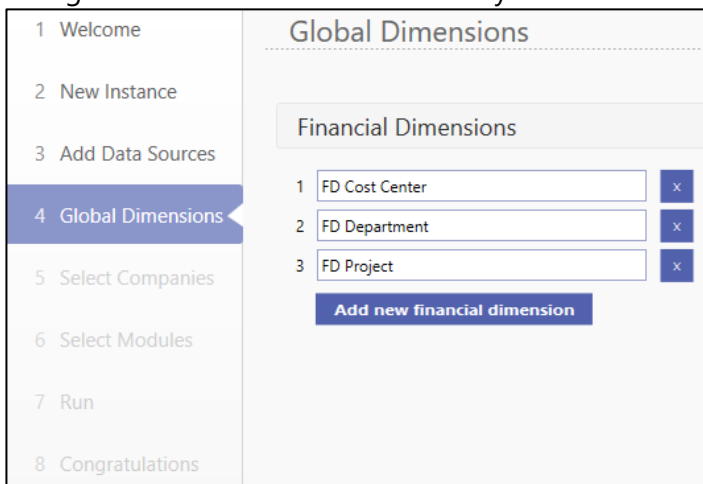


You have successfully added data source

Click **Next**.

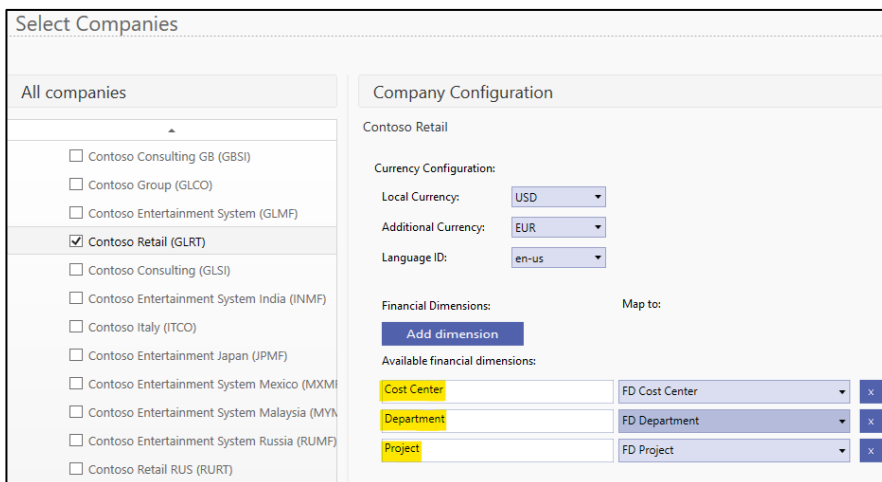
1.3.6. Step 4: Selecting Global Dimensions

Add global financial dimensions from your D365 F&O.



1.3.7. Step 5: Selecting Companies

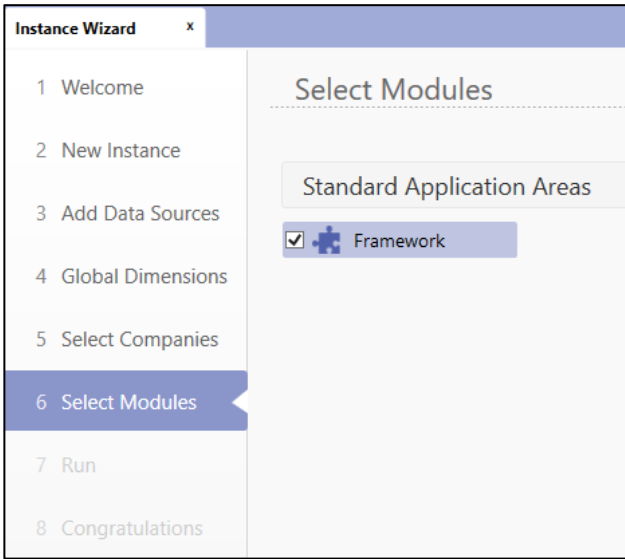
1. From the list of companies **tick the ones you want to include in your instance** and configure additional settings for each selected company:
 - a. **Local Currency**: local currency code (e.g. GBP) – get data from D365 F&O.
 - b. **Additional Currency**: select the additional currency code for this company (e.g. USD).
 - c. **Select Language ID** from the pop-up menu.
 - d. Add financial dimension and relate them with global financial dimensions.



2. Click **Next**.

1.3.8. Step 6: Selecting Modules

Select **Framework** module.

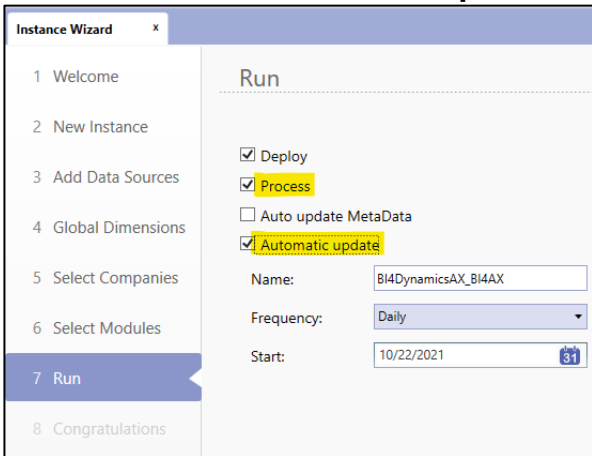


Click **Next**.

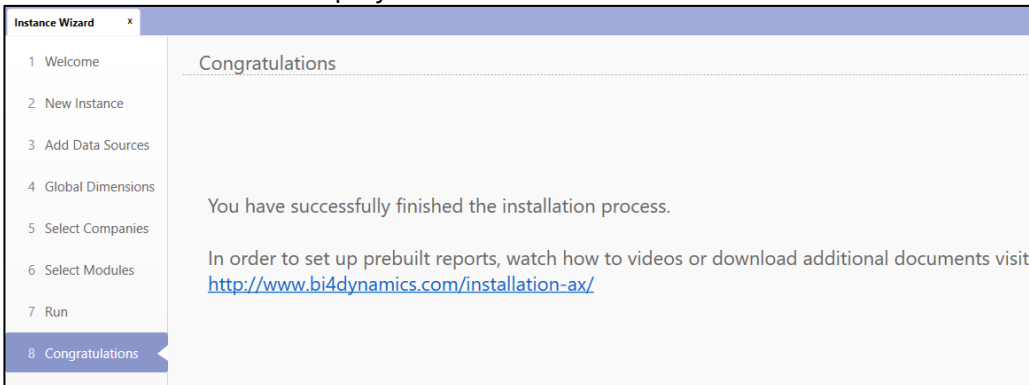
1.3.9. Step 7: Completing installation

Check **Deploy**

Uncheck **Process** and **Automatic update** and, click **Next**.

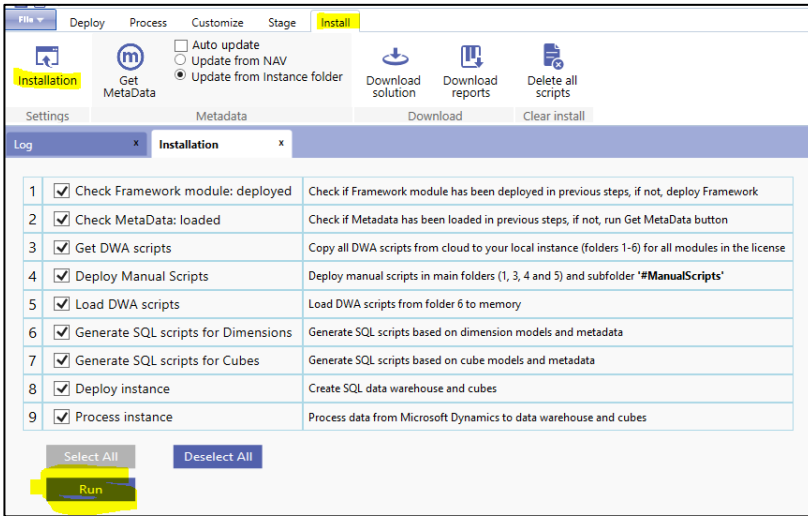


Wait for solution to be deployed

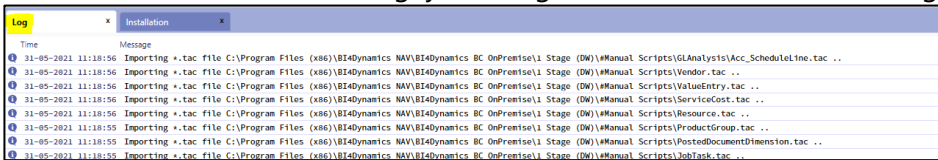


1.4. Installing Data Warehouse and Analytics

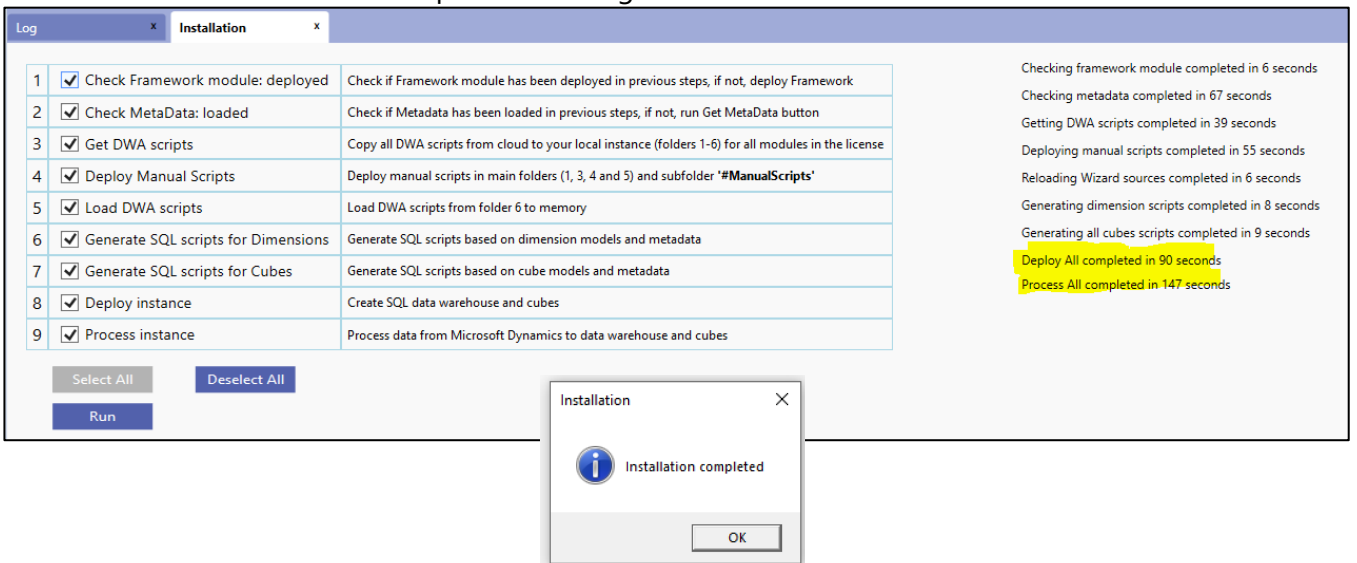
Move to **Install** tab and click **Installation** button.



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 options

2.1. Installing On-premises Data Gateway

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.

2.1.1. Install On-Premises data gateway on the server

Download On-Premises data gateway to server

Download On-Premises Data gateway from Microsoft site:

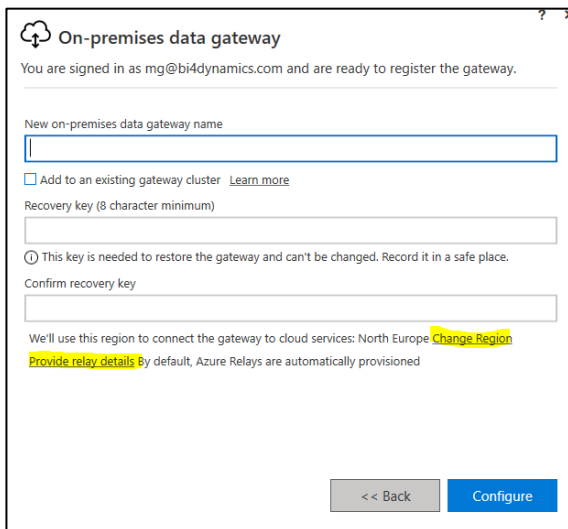
<https://www.microsoft.com/en-us/download/details.aspx?id=53127>

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.



On-premises data gateway

You are signed in as mg@bi4dynamics.com and are ready to register the gateway.

New on-premises data gateway name

Add to an existing gateway cluster [Learn more](#)

Recovery key (8 character minimum)

This key is needed to restore the gateway and can't be changed. Record it in a safe place.

Confirm recovery key

We'll use this region to connect the gateway to cloud services: North Europe [Change Region](#)

[Provide relay details](#) By default, Azure Relays are automatically provisioned

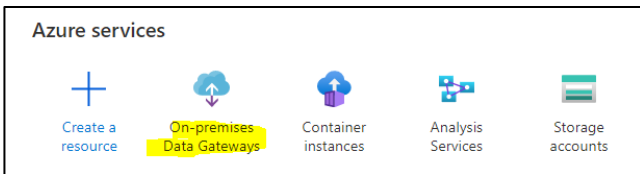
<< Back Configure

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.

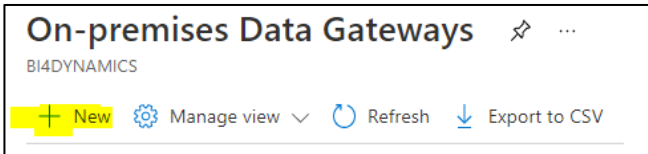
2.1.2. Setup On-premises Data Gateway as Azure Service

Go to **Azure portal**

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



Click on **+ New**



Enter all fields:

Resource name

Subscription

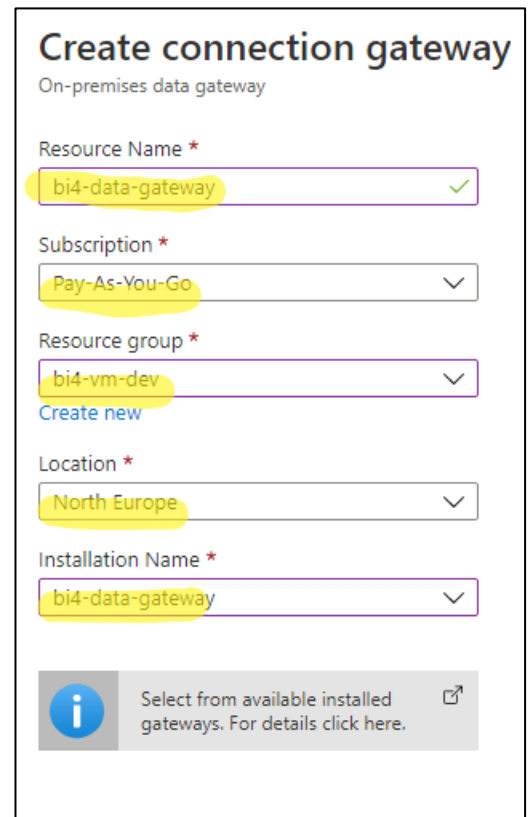
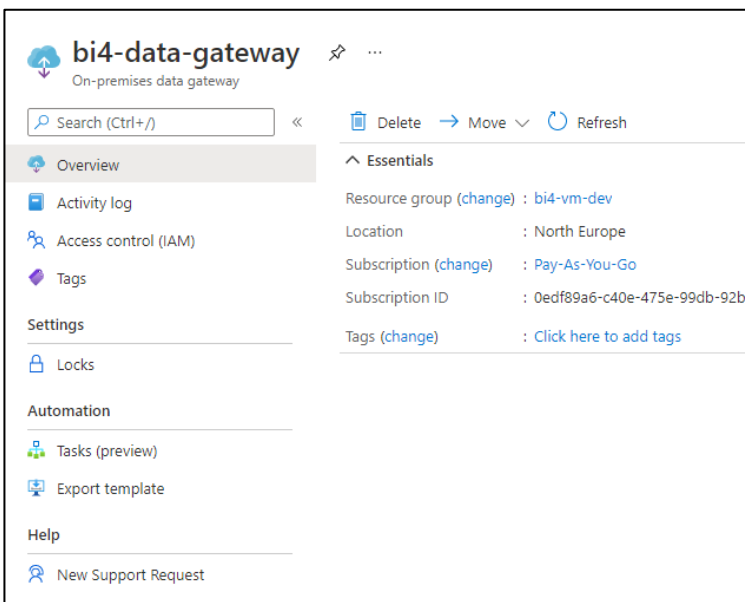
Resource group

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:**

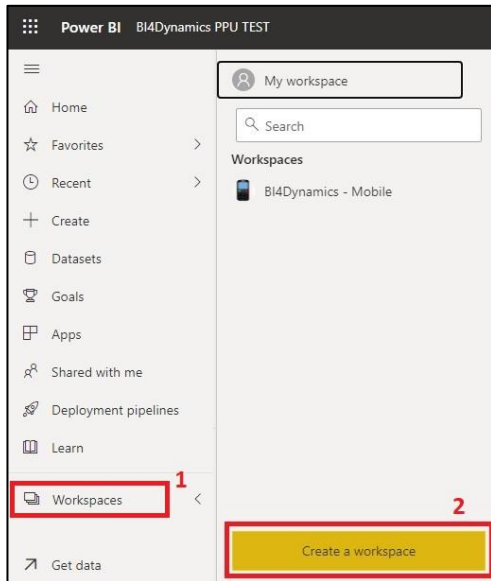


You have successfully created an On-premises Data Gateway as Azure Service.

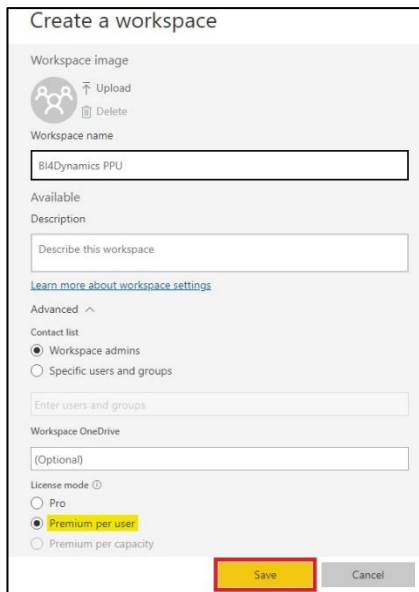
On-premises Data Gateway must be selected on Azure Service like Azure Analysis Services that will use this gateway to receive On-premises data.

2.2. Creating Power BI Premium workspace

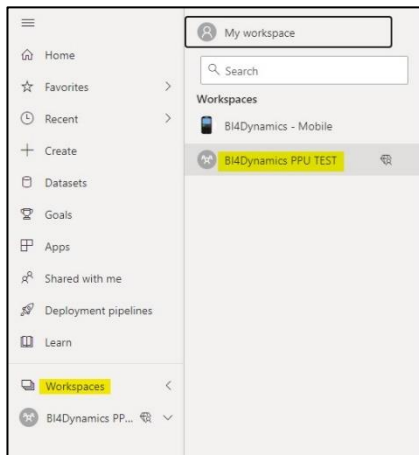
1. Open Power BI portal, press **Workspaces** and **Create a workspace**.



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



3. Navigate to your **Workspace**

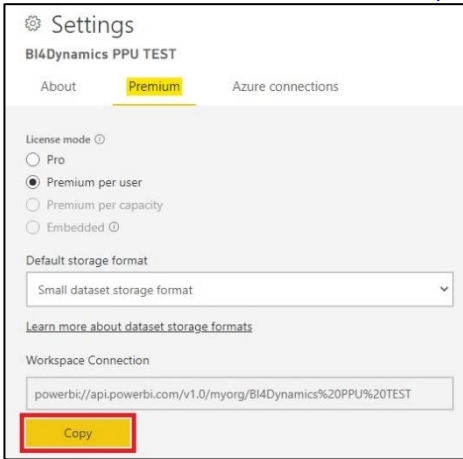


4. Press **Settings** button



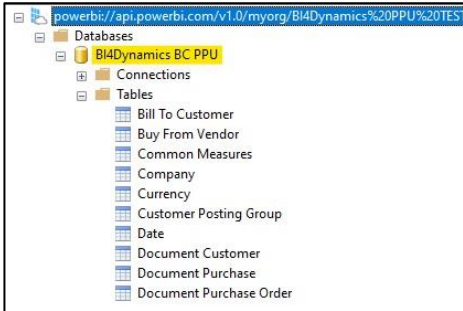
5. Select **Premium** tab and **Premium per user option** and copy **Workspace Connection**.

Link should look like that: powerbi://api.powerbi.com/v1.0/myorg/BI4Dynamics%20PPU%20TEST

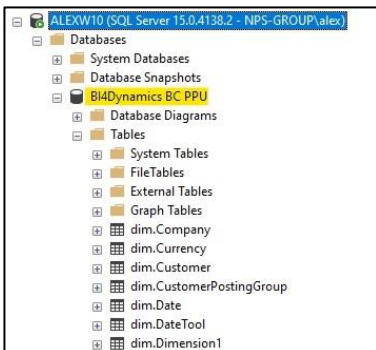


2.3. Completing Power BI Premium option installation

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.

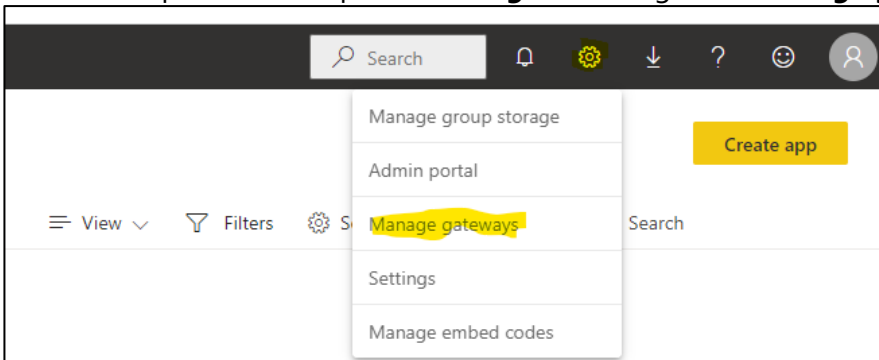


Connect to local Database SQL server to check that instance database has been created.

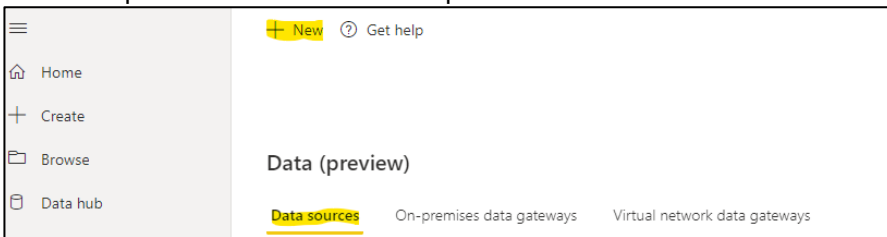


The next step is to add this database as datasource.

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



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

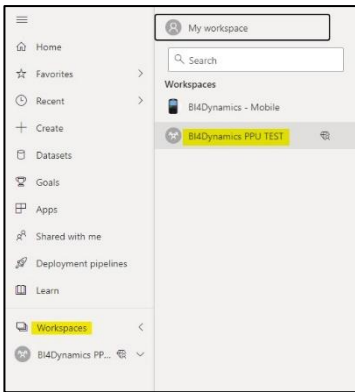


Then fill in the following:

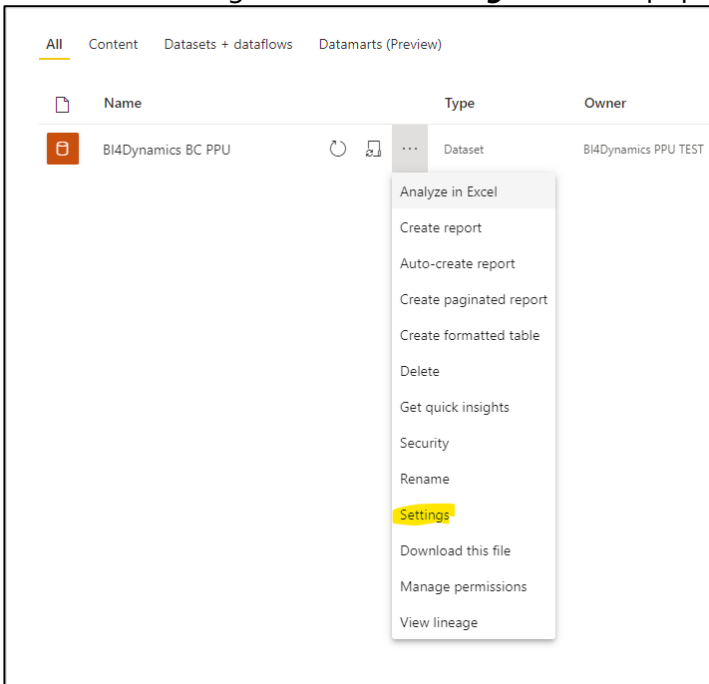
- Choose **Gateway cluster name** (created during installation of **On-premises data gateway**)
- Specify the **Database** and **Data Source names** (in our case they are the same for simplicity)
- Choose **Data Source Type** as **SQL Server**
- Specify your local **Server name**
- Enter **Authentication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

Make sure that connection was established successfully.

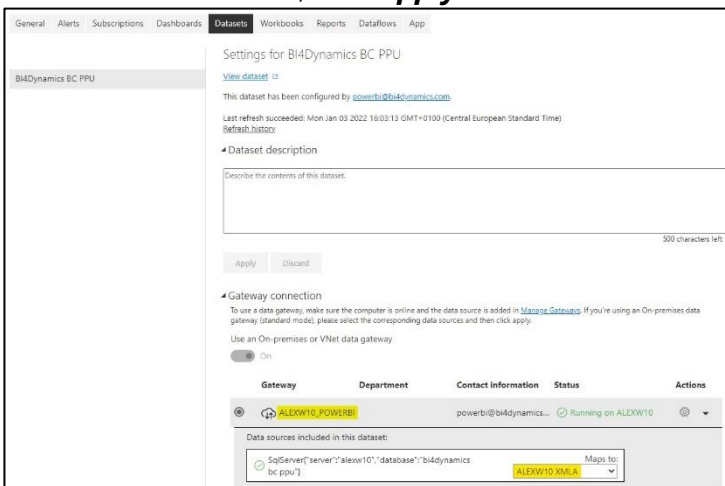
Relate Power BI database with gateway datasource. To do that navigate to your workspace.



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

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**

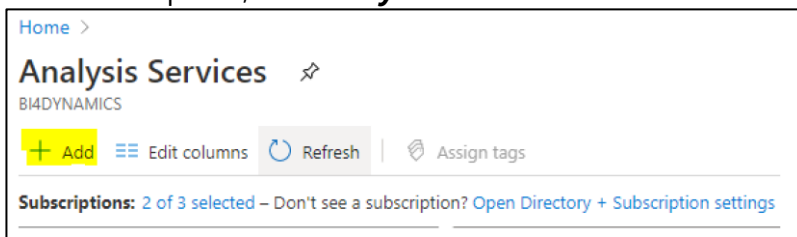
Use this option (also described as **Hybrid** option) for most Production environments where users connect to service with AAD (Azure Active Directory).

In this chapter option B is described.

2.4.1. 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:

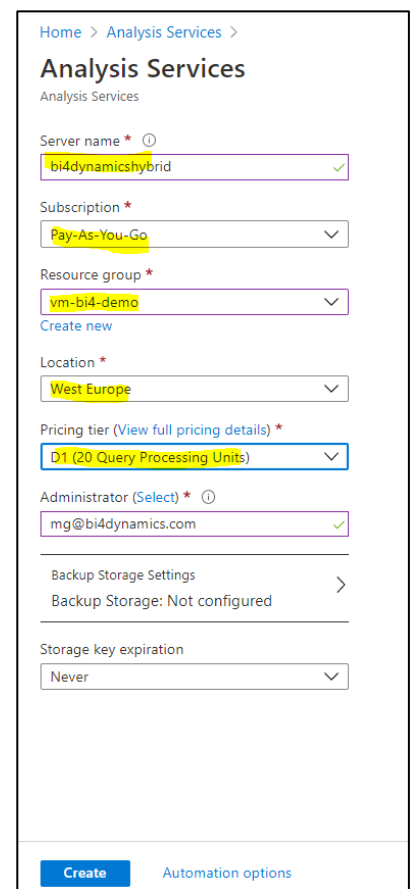
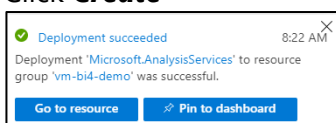
- **Server name**: unique name of Analysis Server
- **Subscription**
- **Resource group**
- **Location**
- **Pricing tier**

Database size (GB) will depend on data type, cardinality, and number of rows in your data warehouse

QPUS (number of processing units) will depend on database size and number of users that will query the data

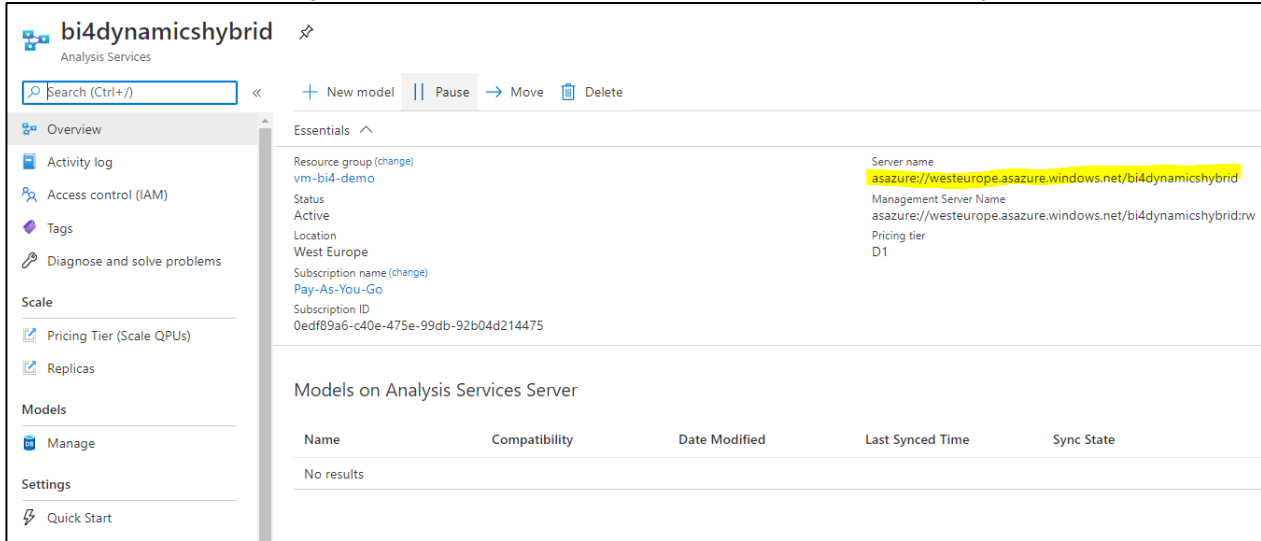
Suggestion: start with lower tier, check if data can fit into database and if response time from your BI tool (Excel or Power BI) is good enough. If not, go for higher tier. It takes 60 seconds to change tier to next level.

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**

2.4.2. Connect to Azure Analysis Services

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

Server Type: Analysis Services

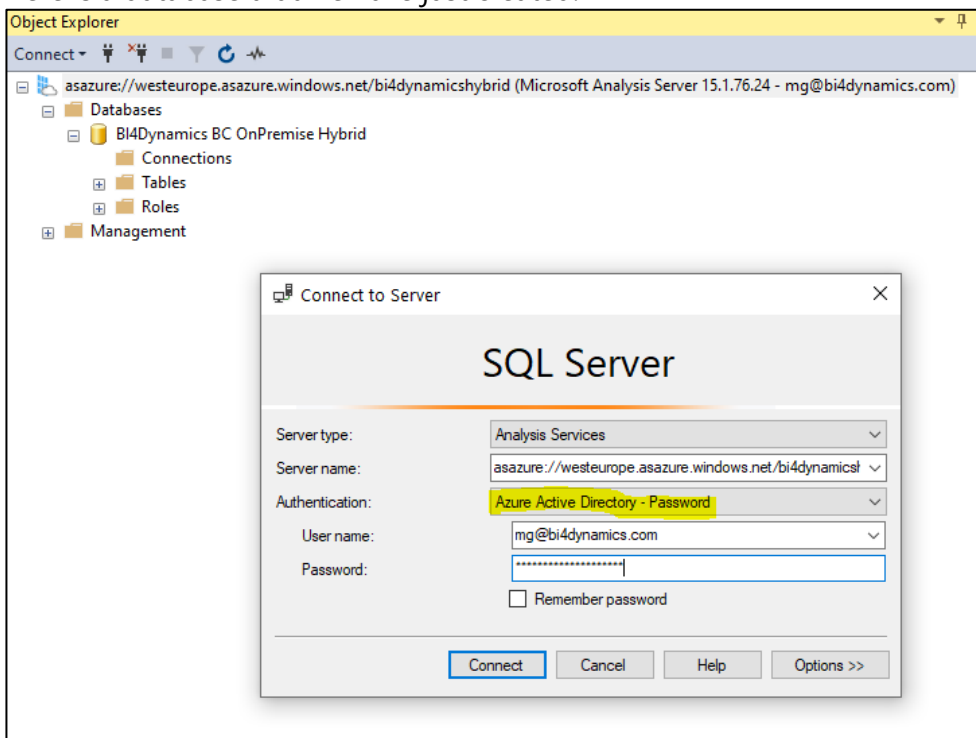
Server name

Authentication: Azure Active Directory - Password

Username

Password

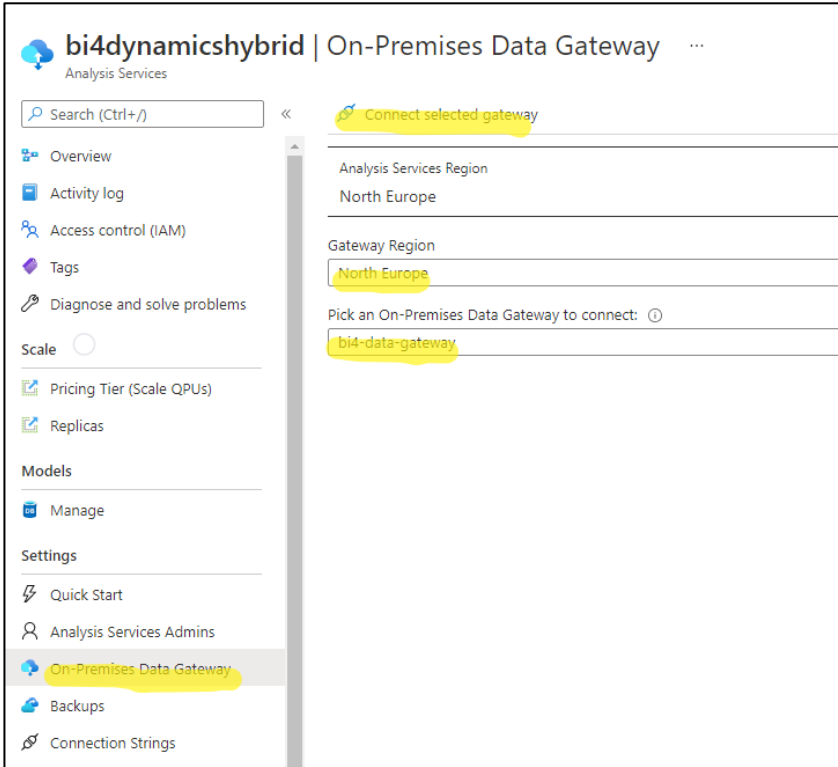
Here is a database that we have just created:



2.4.3. Select On-Premises Data Gateway

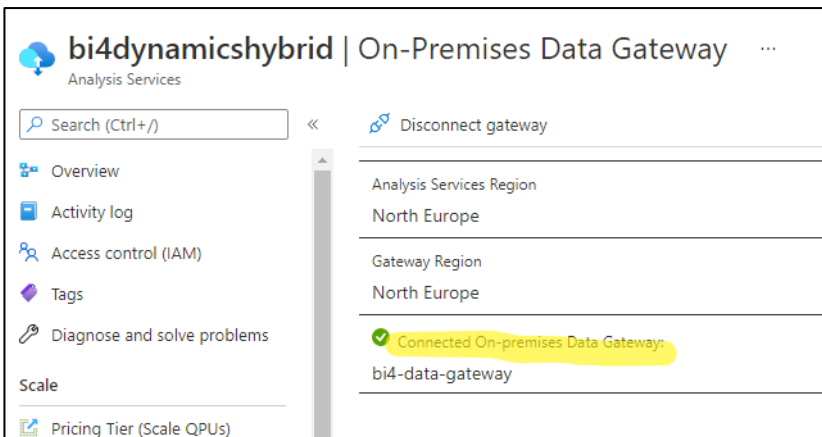
On-Premises Data Gateway is needed when Azure Service received data from On-Premises. When Azure Analysis Services is receiving data from On-Premises source than this option must be selected.

Click on **On-premises data gateway**
And **Pick an On-Premises Data Gateway to connect**



Click **Connect selected gateway**.

Gateway is now connected:



2.5. Implementation option - DFO/AX connector not available

2.5.1. Add Data Source (Dynamics 365 AX connector is not available at the time of installation)

This chapter is about adding Data Source(s) without connecting to D365 F&O for Metadata and language settings.

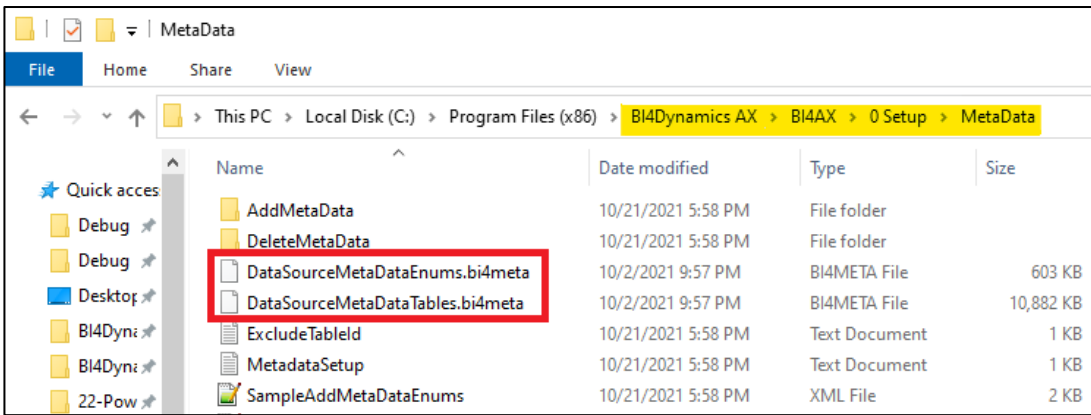
The solution is only temporary and has to be addresses later. Reasons for not being able to connect to D365 F&O could be different: credentials are not available, Azure portal services could not be setup. Consequences of Dynamics 365 AX connector not being available:

- Metadata could not be loaded, thus impossible to have custom tables and columns in BI model.
- Financial dimensions are not available, information on departments, cost centers, projects, etc. could not be got.

- 1) Set **Data Source Version**. For D365 F&O that would be D365 On-Premises
- 2) Type name of **SQL Server Instance** with data database. Type . (dot) if the field is empty.
- 3) Select database from the pop-up menu.
- 4) Select Windows Authentication as a method of **Authentication**.
- 5) Test connection by clicking on **Test connection to SQL Database** button.
- 6) Click on **Add Data Source** button and wait for source to be added.

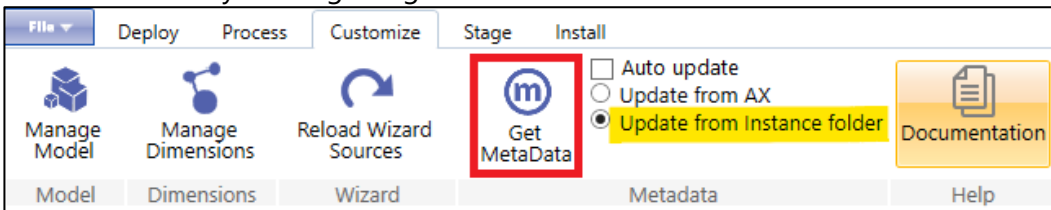
2.5.2. Update instance from Metadata file

Copy Metadata files from directory of sample instance to corresponding folders of the instance you have just created.



Go to **Customize** tab and click **Get MetaData**.

Note: Make sure you are getting Metadata from instance folder



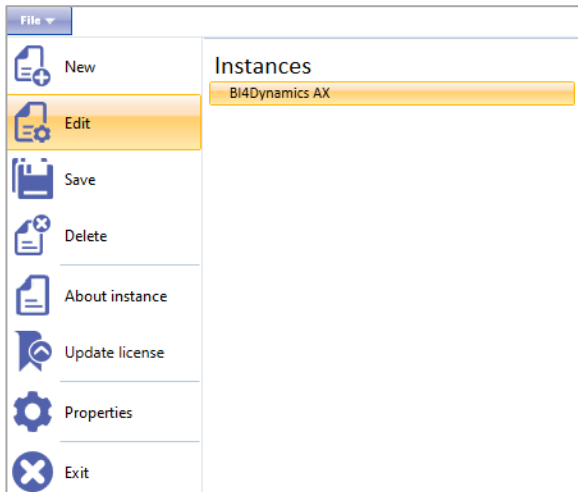
Go back to step *Selecting Global Dimensions* and continue instance creation.

3. Managing instance

3.1. Edit

In order to edit existing BI4Dynamics instance do the following:

1. Open instance
2. Click on **File** and press **Edit**



3. Make changes to instance. For example, in order to move analysis services to Azure change **Authentication** to "Azure Active Directory" and input username and password to Azure portal in the corresponding fields.

 A screenshot of the 'Edit instance' dialog box. The dialog is divided into several sections:

- Instance properties:** Instance name: BI4Dynamics AX; Language: English (United States).
- Copy Instance:** Copy current instance:
- SQL Server:** Database Name: BI4Dynamics AX; SQL Server Name: ALEXW10; Authentication: Windows; Username: NPS-GROUP\alex; Password: [masked]; 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 AX; SQL Analysis Server Name: asazure://eastus.asazure.windows.net; Authentication: Azure Active Directory; Username: apa@bi4dynamics.com; Password: [masked]; SQL Analysis Server Option: Tabular; Model: Import.
- Integration Services:** SQL Integration Service: ; SSIS Server name: ALEXW10; Ver.: 15.0.

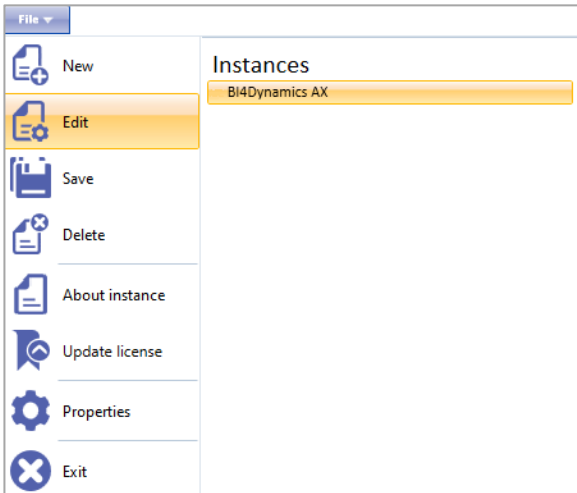
 At the bottom of the dialog, there are three buttons: 'Refresh', 'Test Connectivity', and 'Save & Restart Instance'. The 'Save & Restart Instance' button is highlighted with a red rectangle.

4. Click **Save & Restart Instance**.

3.2. Copy instance

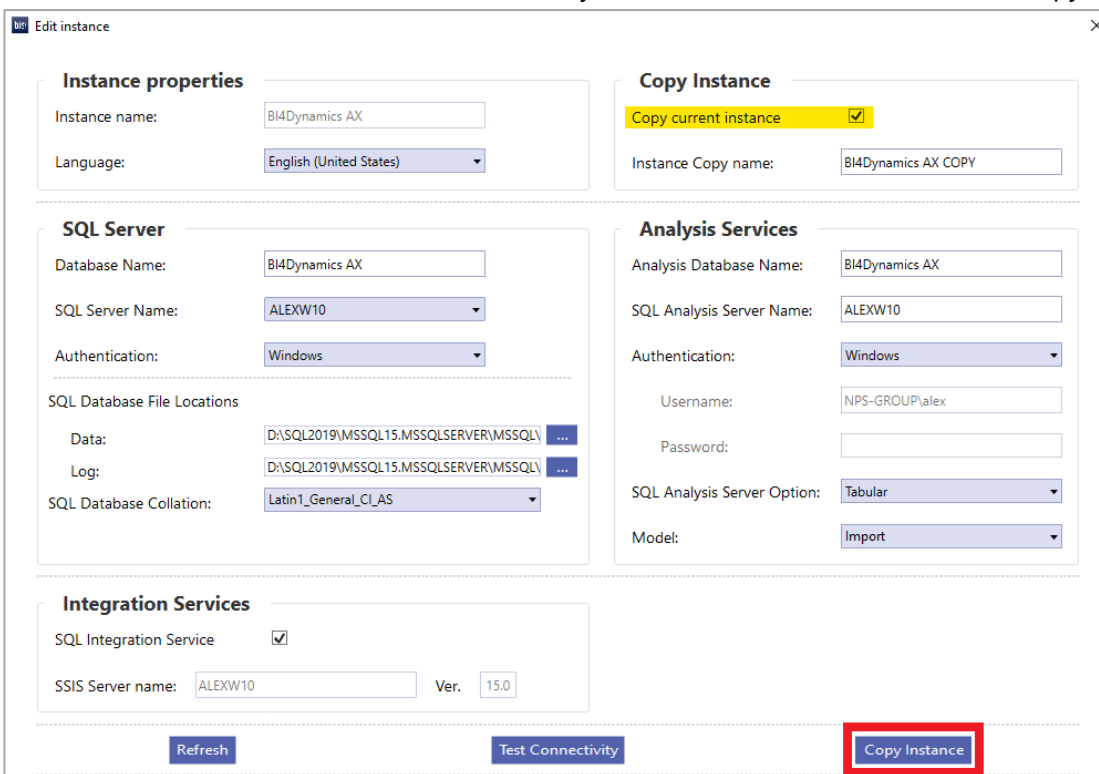
In order to copy an existing BI4Dynamics instance do the following:

Open instance, click on **File** and press **Edit**



Check **Copy current instance** and enter name for the instance that you create.

Note: all modifications, i.e. database name, analysis database name are saved to the copy, not current instance.

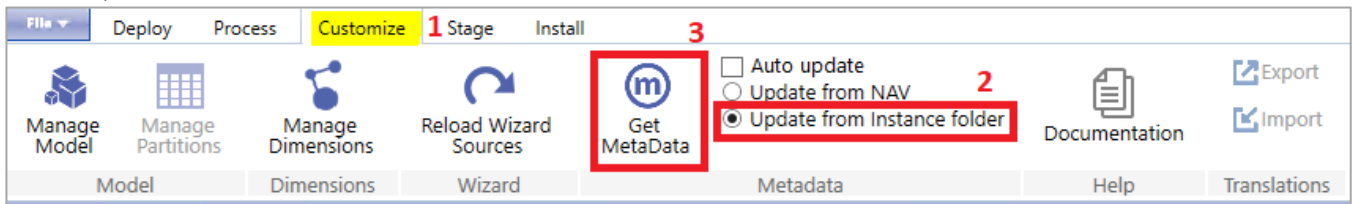


Press **Copy Instance** button, button is disabled when entered settings are not valid - instance with such name already exists, connection to servers cannot be established, etc.

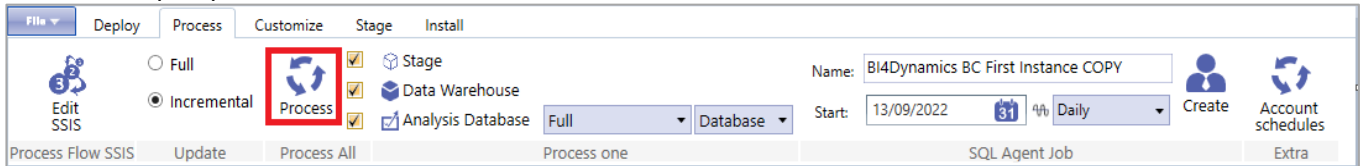
Open copied instance, navigate to **Deploy** tab and Click on **Deploy All**.



Once the instance is successfully deployed open **Customize** tab, make sure **Update from Instance folder** is selected, and **Get Metadata**.



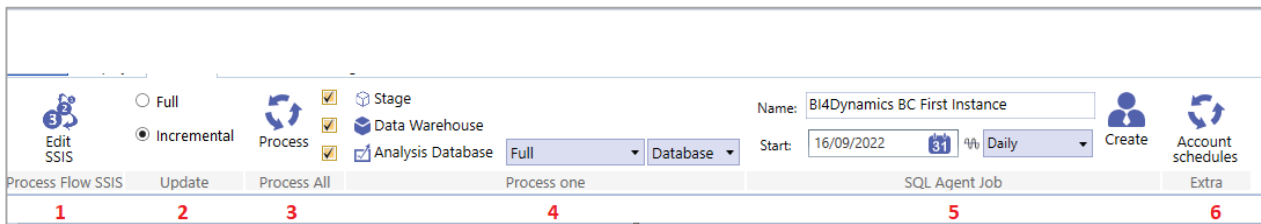
As a last step, Open **Process** tab and click **Process**.



3.3. Edit process flow

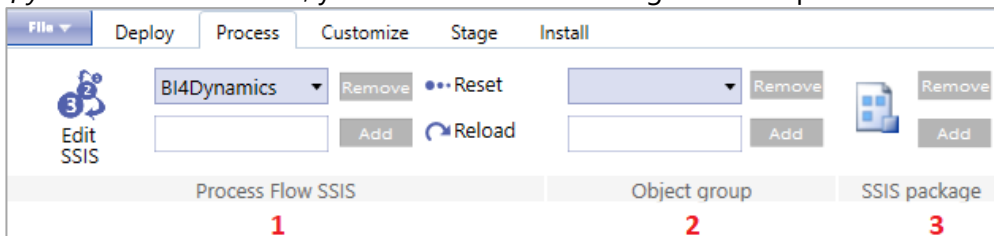
Process flow is used to determine the sequence of execution of stored procedures when processing data with BI4Dynamics. Editing process flow is completely optional and it is usually connected with custom development.

3.3.1. 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

3.3.2. 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

3.3.3. 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).

3.3.4. 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'
```

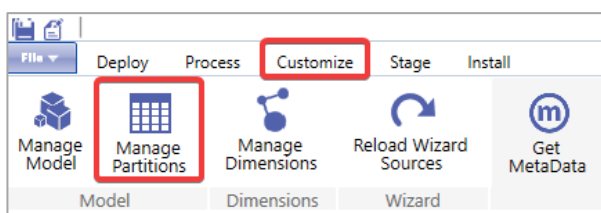
By adding or changing declare statement store procedure's execution flow is determined.

3.4. Manage Partitions

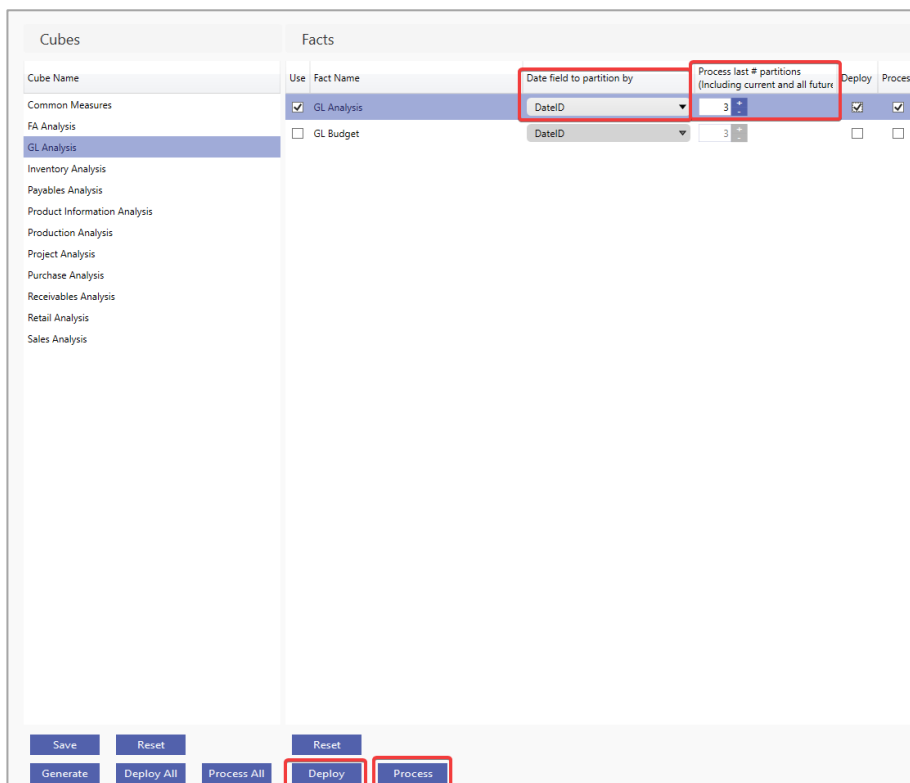
Partitions divide portions of data you need to process (refresh) frequently from data that can be processed less frequently. For example, a fact table may include certain row sets that contain data that rarely changes, but other row sets have data that changes often. There's no need to process all of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

3.5. 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

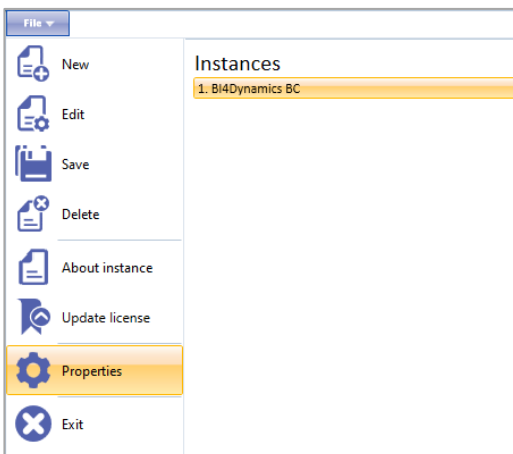
During the installation, the following error might occur on stage:

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

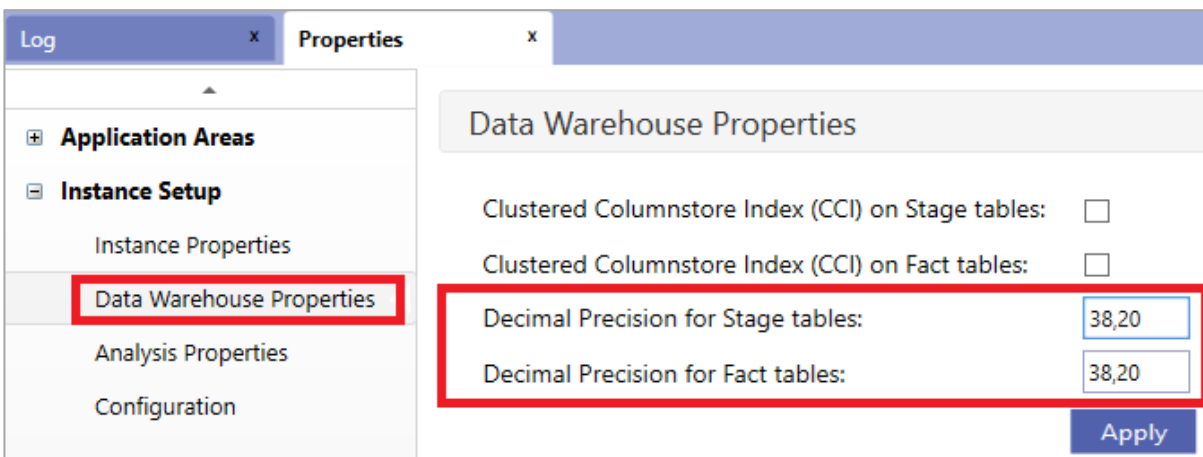
It should be addressed by increasing the precision (e.g. from 19 to 38) and scale (e.g. from 5 to 20). The default maximum precision of numeric and decimal data types is 38.

To change it in application you need to:

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

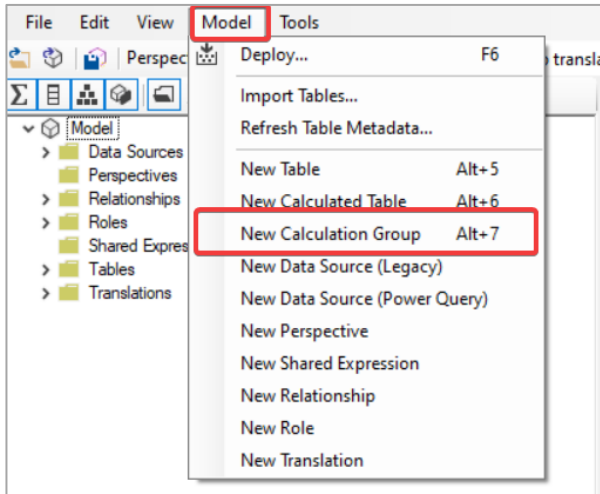


2. Under **Instance Setup > Data Warehouse Properties** precision could be set up for:
 - Stage tables
 - Datawarehouse tables

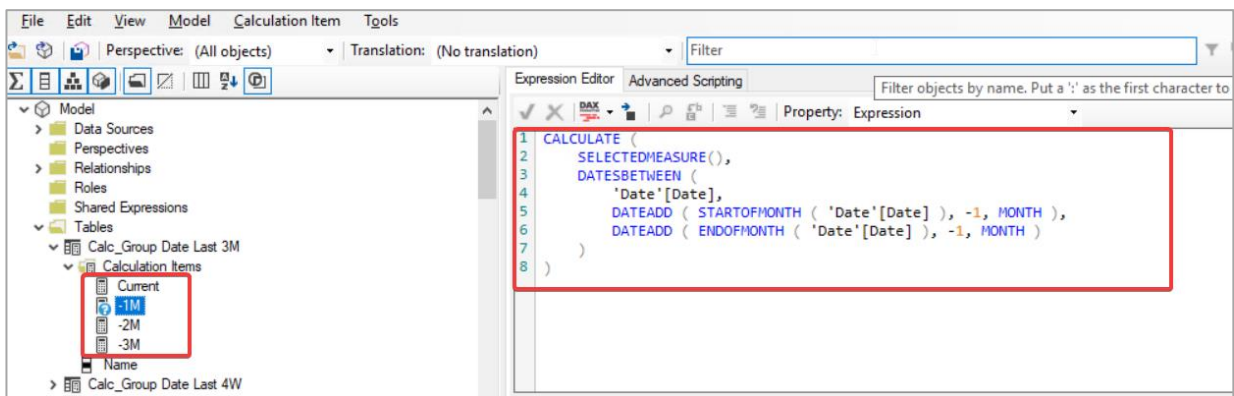


3.6. Adding Calculation groups

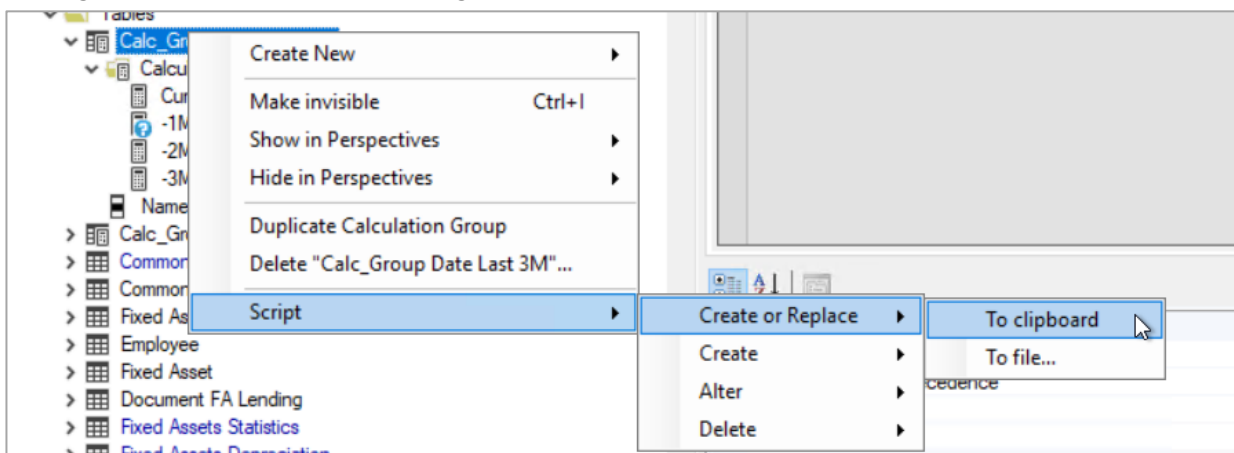
1. Open **Tabular editor**
2. Go to **File > Open > From DB**
3. Select the **Server** and **Instance** where you want to create calculation groups
4. Select **Model** and **New Calculation group**



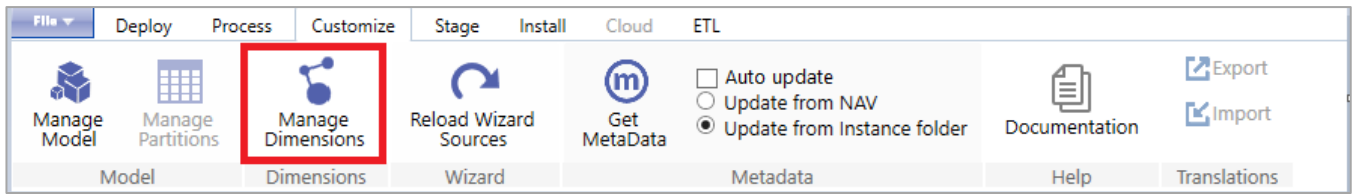
5. Add **new Calculation items** with DAX query



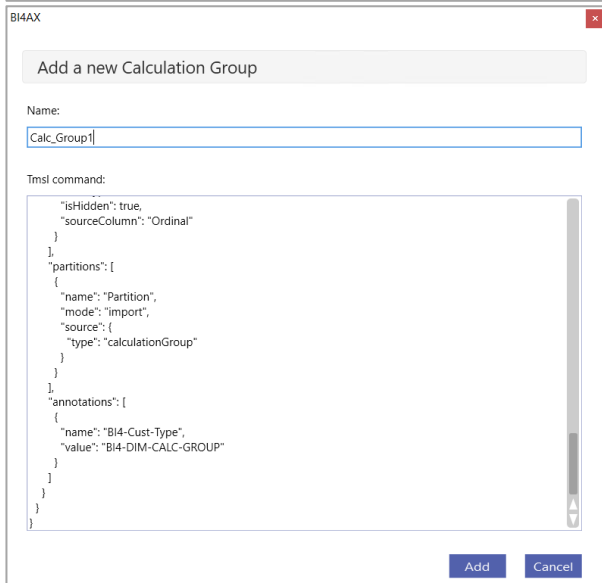
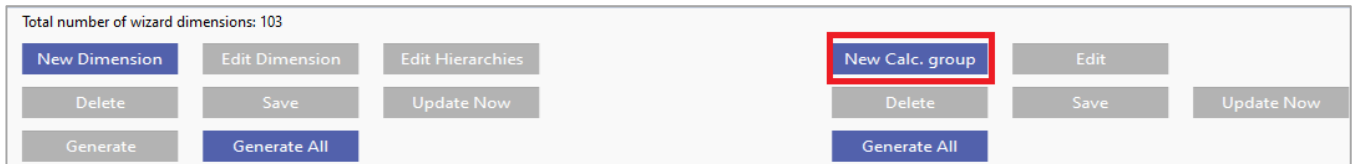
6. Right click the new Calculation group, select **Script > Create or Replace > To Clipboard**



- Open **BI4Dynamics application** and **open instance**
- Go to **Customize** tab > **Manage Dimensions**



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



- Update** and **Generate all** under Calculation groups
- Deploy** and **Process analysis database**

3.7. Deleting instance

- Open the instance you would like to delete by clicking **File** and selecting the instance in the list on the right.
- Click **File > Delete**.
- 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

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

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

4. Connecting Excel and Power BI reports

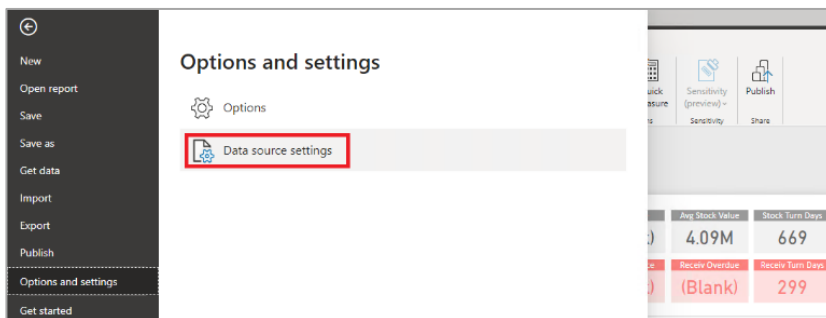
4.1. Downloading Excel and Power BI reports

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

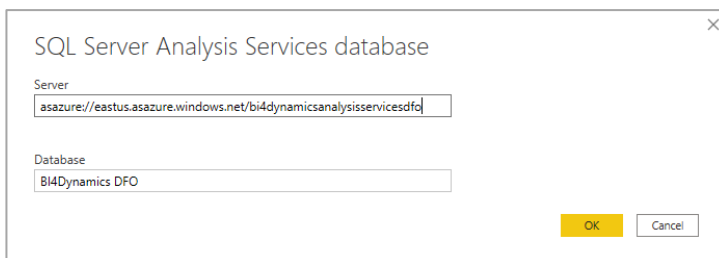
4.2. Connecting Power BI reports

4.2.1. Changing connection

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

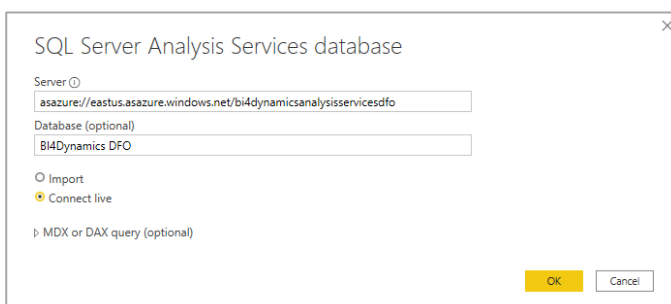


3. Type the **Server name** to the **Server** field. Type the **Database name** to the **Database** field



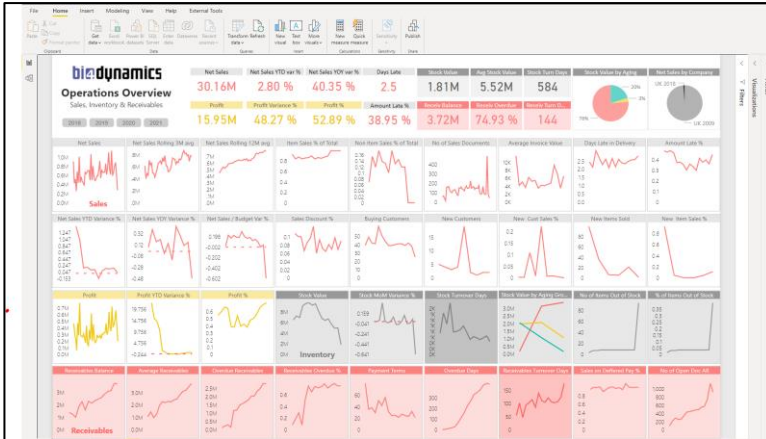
4.2.2. Creating a new connection

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:



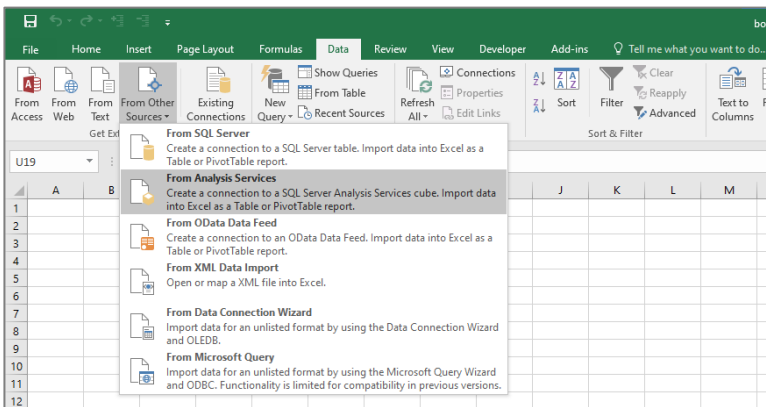
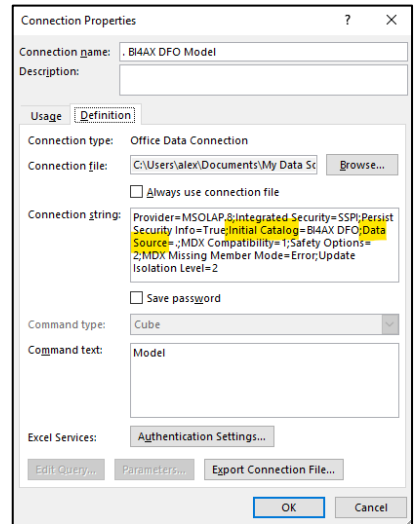
4.3. Connecting Excel reports

4.3.1. Changing connection

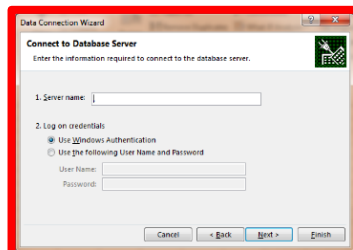
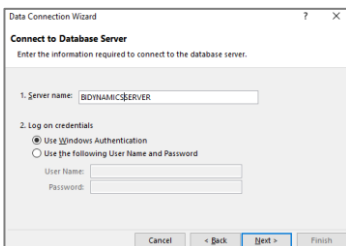
1. **Open** Excel report
2. Click **Data > Connections > Properties > Definition**
3. Type the **database name** to the **Initial Catalog** property of the **Connection string**. Type the **Server name** to the **Data Source** property of the **Connection string**.

4.3.2. Creating a new connection

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

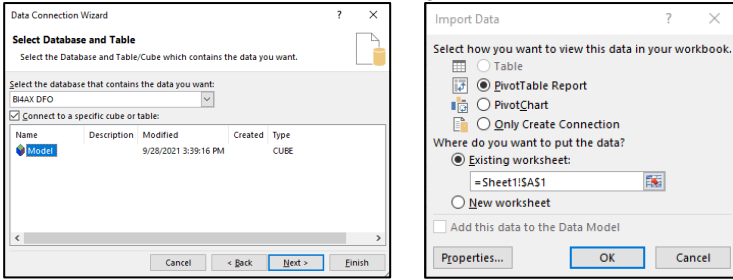


6. Insert a Server name



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

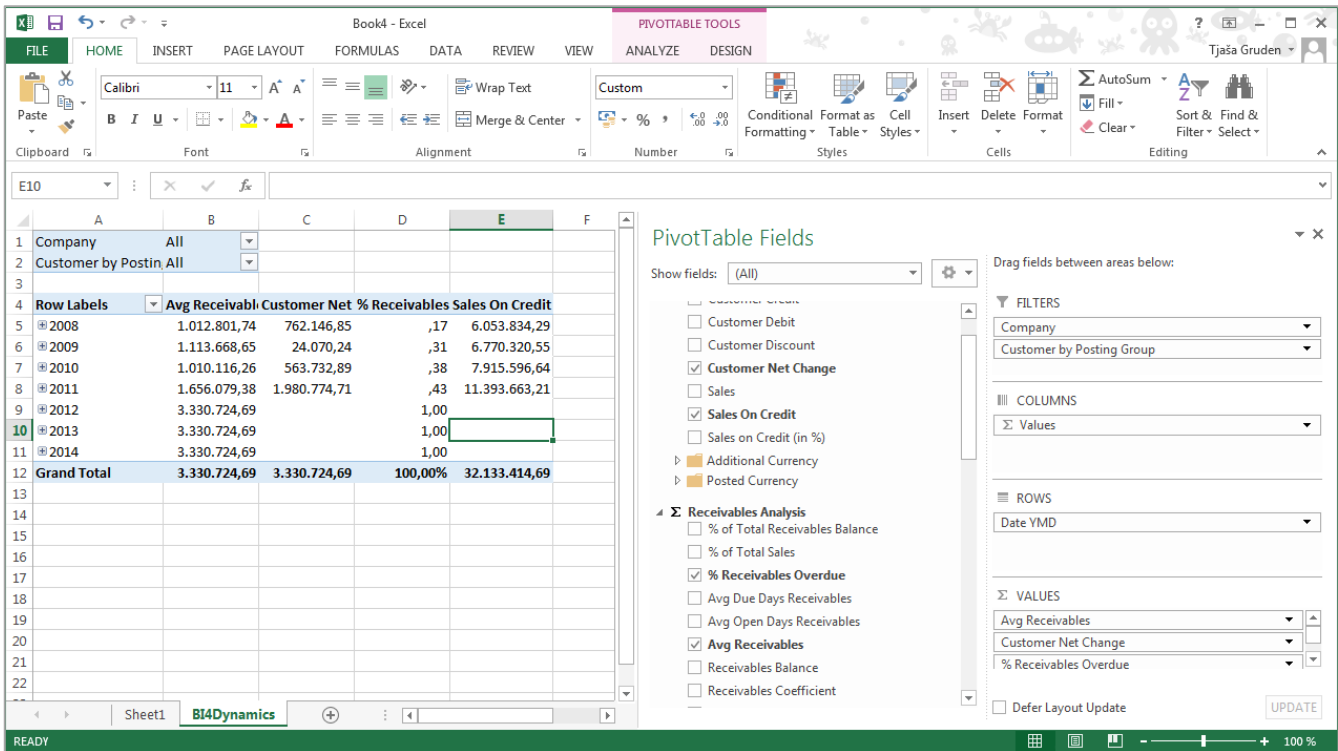
7. Click **Next** and select **Analysis database** from the dropdown menu and select **Model**



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

You have successfully connected Excel to Analysis Services model.

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



You have successfully connected Power BI to Analysis Services model.