

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	rtPxXqxJ2lkOIJFR9Eki#8

1.2. Installing BI4Dynamics application

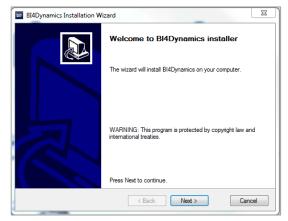
IMPORTANT! Before installing BI4Dynamics, please check hardware and software requirements, make sure you have sufficient permissions and an active internet connected.

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

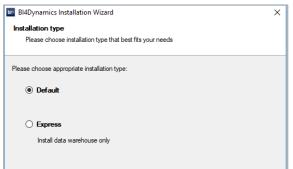
1. Double-click **BI4Dynamics.exe** to start the installation*.

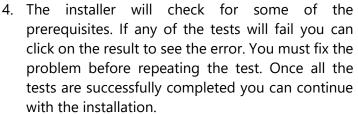
*Always start BI4Dynamics as an administrator. Note: The name of the file varies based on the version you are using.

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

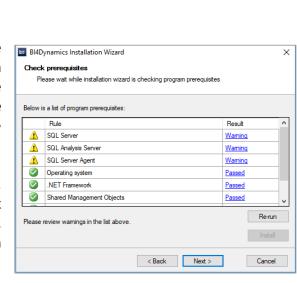


3. Choose Default or Express option



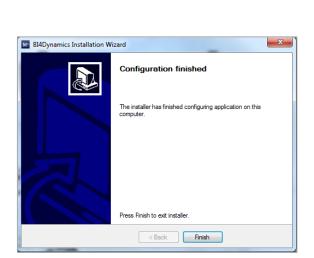


5. If a correct version of Shared Management Objects, Analysis Management Objects or .NET Framework is not installed, please click the **Install** button, which will trigger the installation of correct version of SMO's, AMO's, CLR Types or .NET Framework.





- 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.



< Back Next >

BI4Dynamics Installation Wizard

Please choose where the program should be installed

Program will be installed in the following location:

Create a shortcut for this program on the desktop.
 Create a shortcut for this program in the start menu.

C:\Program Files (x86)\BI4Dynamics\

Installation location

Disk space

Total space

Free space:

	P	a	10	е	5
--	---	---	----	---	---

23

Change...

90.1 GB

32.4 GB

Cancel

1.3. Creating BI4Dynamics instance

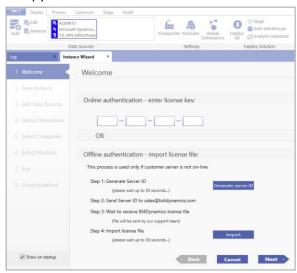
Deploying a BI4Dynamics solution is a seven-step process:

- 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).

Offline authentication - import license file:	
This process is used only if customer server is not on-line	
Step 1: Generate Server ID	Generate server ID
(please wait up to 30 seconds)	Senerate Server 15
Step 2: Send Server ID to support@bi4dynamics.com	
Step 3: Wait to receive BI4Dynamics license file	
(file will be sent by our support team)	
Step 4: Import license file	Import
(please wait up to 30 seconds)	

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.

New Instance			
Instance properties Instance name: Language:	BI4Dynamics DFO English (United States) •		
SQL Server Database Name: SQL Server Name:	BI4Dynamics DFO ALEXW10	Analysis Services Analysis Database Name: SQL Analysis Server Name:	BI4Dynamics DFO ALENV10
Authentication: GQL Database File Locations Data:	Windows	Authentication: Username: Password:	Windows •
Log: GQL Database Collation:	D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Latin1_General_CLAS •	SQL Analysis Server Option: Model:	Tabular •
Integration Services SQL Integration Service SSIS Server name: ALDOVIO	V		
		Refresh	

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 (<u>adminuser@domain.com</u>) that has been entered when creating Azure Analysis Services
- Password: enter password for Azure Active Directory

Instance properties			
Instance name:	BI4Dynamics DFO		
Language:	English (United States)		
SQL Server		Analysis Services	
Database Name:	84Dynamics DFO	Analysis Database Name:	BI4Dynamics DFO
SQL Server Name:	ALEXW10 ·	SQL Analysis Server Name:	asazure://southeastasia.asazure.wind
Authentication:	Windows •	Authentication:	Azure Active Directory 🔹
Impersonation account:		Username:	apa@bi4dynamics.com
Username:	NPS-GROUP\alex	Password:	•••••
Password		SQL Analysis Server Option:	Tabular 🗸
SQL Database File Locations		Model:	Import
Data:	D-\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Model:	Import
Log:	D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\		
SQL Database Collation:	Latin1_General_CL_AS •		
Integration Services			
SQL Integration Service	V		
SSIS Server name: ALEXW10	Ver. 15.0		
		Refresh	

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:	BI4Dynamics DFO		
Language:	English (United States)		
SQL Server		Analysis Services	
Database Name:	BI4Dynamics DFO	Analysis Database Name:	BI4Dynamics DFO
SQL Server Name:	ALEXW10 •	SQL Analysis Server Name:	asazure://southeastasia.asazure.wind
Authentication:	Windows 🔻	Authentication:	Azure Active Directory 🔹
Impersonation account:		Username:	apa@bi4dynamics.com
Username:	NPS-GROUP\alex	Password:	•••••
Password	•••••	SQL Analysis Server Option:	Tabular 🔻
SQL Database File Locations		Model:	Import 👻
Data:	D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	wodel:	import •
Log:	D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\		
SQL Database Collation:	Latin1_General_CI_AS		
Integration Services			
SQL Integration Service			
SSIS Server name: ALEXW10	Ver. 15.0		
		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.

Add Data Sou	rces		
Add all AX source da	tabases you wish to analyze in BI4	Dynamics to your BI4Dynami	ics instance.
Data source info	rmation	Dynamics 365 AX Co	nnector settings
Data Source Version:	D365 On-Premises 🔹	Services hostname URL	abccorp-uat.sandbox.operations.dynamics.com
Data Source SQL Datab	ase	Tenant id	4893fdsq-554f-84b2-b22c-f2aaee1a0111
SQL Server Instance:	ALEXW10 -	Client app id	b6b08c0f-d544-5155-9ert-r4rr79f11de9
Database Name:	Microsoft Dynamics AX 7	Client secret key	•••••
Authentication:	Windows Authentication 🔹	Username	bi4dynamics@abccorp.com
Azure Data source		Password	•••••
Blob Data source	Test connection to Sql Database		Test connection to AX Services Setup AX Languages
	Add Data Source		
Data sources			

- 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.

 Microsoft Azure	Р app regis			×
Azure services	Services	See all	Marketplace	
Azure services	App registrations		No results were found.	
+	🥵 App Configuration		Documentation	See all
Create a	App proxy		Quickstart: Register an app in the Microsoft identity	
resource reg	App Services		Register mobile apps that call web APIs - Microsoft	
	Sunction App		Add app roles and get them from a token - Microsoft	
Recent resources	Application gateways		Troubleshoot login to registry - Azure Container Registry	
	Application groups		Resource Groups	
Name	Application Insights			
~	Cantainar Anno		No results were found.	

Select BI4Dynamics app.

E Microsoft Azure	\mathcal{P} Search resources, services, and docs (G+/)	C C	ଡ ନ	pa@abccopr.com ABC Corporation
Home > App registrations ∞ …				
+ New registration Endpoints Troubleshooting Refresh	Download 💀 Preview features 🖗 Got feedback?			
All applications Owned applications Deleted applications				
P Start typing a display name to filter these results	Application (client) ID starts with $\medskip > \medskip > \medsk$			
1 applications found				
Display name 🔨	Application (client) ID		Created on ↑.	Certificates & secrets
ec BI4Dynamics Cloud				

Copy Application (client) ID value.

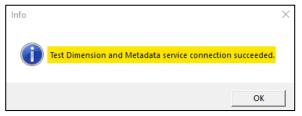
			es, services, and docs (G+/)	P	4	\$	0	<u>R</u>	pa@abccorp.com ABC Corporation
Home > App registrations >									
ABC Corporation	Cloud	s ⊗ I							×
	Î	Delete 🕀 Endpoin	ts 💀 Preview features						
₽ Search (Ctrl+/)	«	∧ Essentials							
Uverview Overview		Display name	: BI4Dynamics Cloud		Client	creden	itials		: 0 certificate, 2 secret
📣 Quickstart		Application (client) ID	: 4b72efb1-973f-46d4-94ee-4ffdbfc218f2		Redire	ect URIs	5		: 0 web, 0 spa, 1 public client
🚀 Integration assistant		Object ID	: e9ec86ca-e6e5-4cdd-82a9-b70c81efc801		Applic	ation II	D URI		: Add an Application ID URI
Manage		Directory (tenant) ID	: 08508dc2-ec29-4922-94d9-c2f3221a7d85		Mana	ged app	plicatio	n in I	: BI4Dynamics Cloud
Manage	-	Supported account type	es : My organization only						

• 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.

Microsoft Azure		P Search resour	ces, services, and docs (G+/)			9 0 R	apa@bi4dynamics.com
Home > App registrations > BI4Dyr						Add a d	lient secret $ imes$
P BI4Dynamics Clou	ud Certificates & sec	rets 🖈 …				Description	BI4
₽ Search (Ctrl+/)	« 🖗 Got feedback?					Expires	24 months V
Overview		pplications to identify themselves surance, we recommend using a ce		when receiving tokens at a web addressable location ret) as a credential.	(using an HTTPS		
 Quickstant Integration assistant 	Certificates (0) Client sec						
Manage	A secret string that the applicat	ion uses to prove its identity when	requesting a token. Also can	pe referred to as application password.			
Branding & properties	+ New client secret						
Authentication	Description	Expires	Value 🛈	3 Secret ID		-	2
Certificates & secrets Token configuration	B14	1/21/2024	tM57Q~F4pQivEUsBabV	aSbF4pQivEUcZ 🗋 e429dd49-4900-4900-9042	- e429dd493 🗈 📋	Add	Cancel

- 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:



Data sources		
ALEXW10 Microsoft Dynamics AX 7	Edit	
Image: State of the state of t	Remove	

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 Welcome	Global Dimensions	
2 New Instance		
3 Add Data Sources	Financial Dimensions	
4 Global Dimensions	1 FD Cost Center	×
	2 FD Department	×
5 Select Companies	3 FD Project	×
6 Select Modules	Add new financial dimension	
7 Run		
8 Congratulations		

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.

Select Companies				
All companies	Company Configu	ration		
*	Contoso Retail			
Contoso Consulting GB (GBSI)	Currency Configuration:			
Contoso Group (GLCO)	Local Currency:	USD -		
Contoso Entertainment System (GLMF)	Additional Currency:	FUR •		
Contoso Retail (GLRT)	-			
Contoso Consulting (GLSI)	Language ID:	en-us 🔻		
Contoso Entertainment System India (INMF)	Financial Dimensions:		Map to:	
Contoso Italy (ITCO)	Add dimension			
Contoso Entertainment Japan (JPMF)	Available financial dimen	sions:		
Contoso Entertainment System Mexico (MXMI	Cost Center		FD Cost Center	×
Contoso Entertainment System Malaysia (MYN	Department		FD Department	• x
Contoso Entertainment System Russia (RUMF)	Project		FD Project	• x
Contoso Retail RUS (RURT)				

2. Click **Next.**

1.3.8. Step 6: Selecting Modules

Select Framework module.

Instance Wizard X	
1 Welcome	Select Modules
2 New Instance	
3 Add Data Sources	Standard Application Areas
	🗹 📩 Framework
4 Global Dimensions	
5 Select Companies	
6 Select Modules	
7 Run	
8 Congratulations	

Click **Next.**

1.3.9. Step 7: Completing installation

Check **Deploy**

Uncheck Process and Automatic update and, click Next.

Instance Wizard ×		
1 Welcome	Run	
2 New Instance		
3 Add Data Sources	 Deploy Process 	
4 Global Dimensions	Auto update Automatic up	
5 Select Companies	Name:	BI4DynamicsAX_BI4AX
6 Select Modules	Frequency:	Daily •
7 Run	Start:	10/22/2021
8 Congratulations		

Wait for solution to be deployed

Instance Wizard ×	
1 Welcome	Congratulations
2 New Instance	
3 Add Data Sources	
4 Global Dimensions	You have successfully finished the installation process.
5 Select Companies	······································
6 Select Modules	In order to set up prebuilt reports, watch how to videos or download additional documents visit http://www.bi4dynamics.com/installation-ax/
7 Run	
8 Congratulations	

1.4. Installing Data Warehouse and Analytics

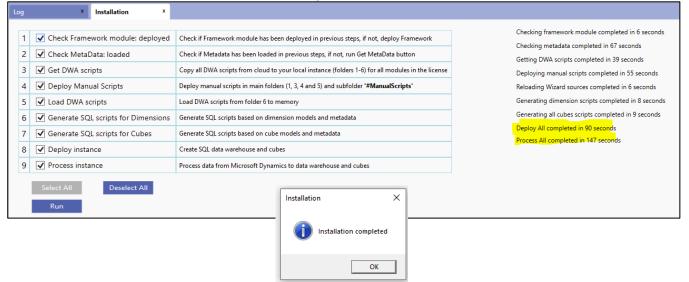
Move to Install tab and click Installation button.

File V	Depl	oy Process Get MetaData	Customize Auto update Update from Update from	NAV	Install e folder	Download solution	Download reports	Delete all scripts		
Set	tings		Metadata			Dow	nload	Clear install		
Log		× Ir	nstallation	×						
1	🖌 Ch	eck Framewo	ork module: dep	loyed	Check if I	ramework mod	lule has been de	ployed in previou	us steps, if not, deploy Framework	
2	🖌 Ch	eck MetaDat	ta: loaded		Check if Metadata has been loaded in previous steps, if not, run Get MetaData button					
3	🖌 Ge	t DWA script	s		Copy all DWA scripts from cloud to your local instance (folders 1-6) for all modules in the license					
4	🖌 De	ploy Manual	Scripts		Deploy manual scripts in main folders (1, 3, 4 and 5) and subfolder '#ManualScripts'					
5	🖌 Loa	ad DWA scrip	ots		Load DWA scripts from folder 6 to memory					
6	🖌 Ge	nerate SQL s	cripts for Dime	nsions	Generate SQL scripts based on dimension models and metadata					
7	🖌 Ge	nerate SQL s	cripts for Cubes	;	Generate	SQL scripts bas	ed on cube mod	lels and metadata	3	
8	✓ Deploy instance					Create SQL data warehouse and cubes				
9	V Pro	cess instanc	e		Process data from Microsoft Dynamics to data warehouse and cubes					
	Selec		Deselect All	I						

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

	Log		×	Installation		x						
- 1	Ti	me		Message								
	0 :	1-05-2021 1	1:18:56	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynam1cs	NAV\BI4Dynam1cs	BC OnPremise\1	Stage (DW)\#Manual	Scripts\GLAnalysis\Acc_ScheduleLine.tac	
1	Q :	1-05-2021 1	1:18:56	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynam1cs	NAV\BI4Dynam1cs	BC OnPremise\1	Stage (DW)\#Manual	Scr1pts\Vendor.tac	
1	Q :	1-05-2021 1	1:18:56	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\ValueEntry.tac	
- 1	Q :	1-05-2021 1	1:18:56	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\ServiceCost.tac	
- 1	Q :	1-05-2021 1	1:18:56	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\Resource.tac	
	0 :	1-05-2021 1	1:18:55	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\ProductGroup.tac	
	0 :	1-05-2021 1	1:18:55	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\PostedDocumentDimension.tac	
- 1	0 :	1-05-2021 1	1:18:55	Importing	*.tac file	C:\Program Files	(x86)\BI4Dynamics	NAV\BI4Dynamics	BC OnPremise\1	Stage (DW)\#Manual	Scripts\JobTask.tac	

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

Install On-premises data gateway

Follow the documentation from Microsoft site: <u>https://docs.microsoft.com/en-us/data-integration/gateway/service-gateway-install</u>

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.

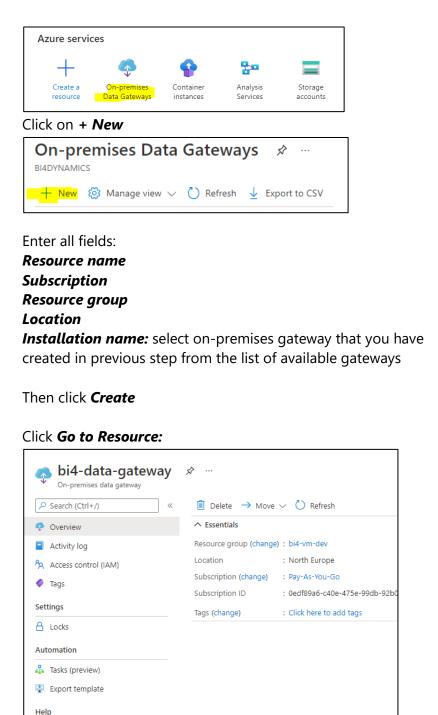
	?	X
🗘 On-premises data gateway		
You are signed in as mg@bi4dynamics.com and are ready to register the gateway.		
New on-premises data gateway name		
Add to an existing gateway cluster Learn more		
Recovery key (8 character minimum)		
() This key is needed to restore the gateway and can't be changed. Record it in a safe place.		
Confirm recovery key		
		1
We'll use this region to connect the gateway to cloud services: North Europe Change Region		1
Provide relay details By default, Azure Relays are automatically provisioned		
<< Back Configur		
< < Back Configur	e-	

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**



🙊 New Support Request

Create connection gat On-premises data gateway	eway
Resource Name *	
bi4-data-gateway	\checkmark
Subscription *	
Pay-As-You-Go	\sim
Resource group *	
bi4-vm-dev	\sim
Create new	
Location *	
North Europe	\sim
Installation Name *	
bi4-data-gateway	\sim
Select from available installed gateways. For details click here.	ď

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

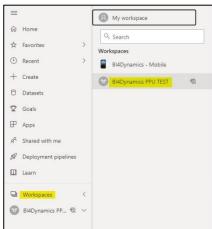
1. Open Power BI portal, press *Workspaces* and *Create a workspace*.

	Power BI BI4Dyna	mics	PPU TEST	
≡	6		My workspace	
仚	Home		Q Search	
☆	Favorites	>	Workspaces	
Ŀ	Recent	>	BI4Dynamics - Mobile	
+	Create			
0	Datasets			
₽	Goals			
甲	Apps			
RR	Shared with me			
59	Deployment pipelines			
Ω	Learn			
Q	Workspaces 1	<		2
٦	Get data		Create a workspace	

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

Workspace image
Workspace name
Workspace name
BI4Dynamics PPU
Available
Description
Describe this workspace
Learn more about workspace settings
Advanced A
Contact list
Workspace admins
 Specific users and groups
Workspace OneDrive
(Optional)
License mode ①
O Pro
Premium per user
Premium per capacity
Save Cancel

3. Navigate to your Workspace

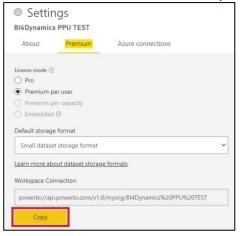


4. Press Settings button

⁶ X ⁶	BI4Dynamics PPU TEST 🛞									Create app
+ New						ב View ע י	7 Filters 🖉 Settings	R Access	D Search	
All	Content Datasets + dataflows									
D	Name	Type	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Include in app		
0	BI4Dynamics BC PPU	Dataset	BI4Dynamics PPU TEST	1/2/22, 2:43:37 PM	N/A					

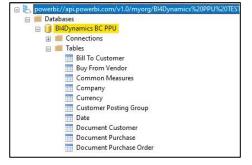
5. Select **Premium** tab and **Premium per user option** and copy **Workspace Connection**.

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

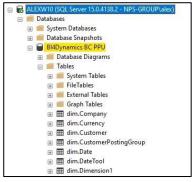


2.3. Completing Power BI Premium option installation

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**.

	O Search 🗘 🙆	₹	?	٢	8
	Manage group storage		Carro		
	Admin portal		Crea	ate app	
\equiv View \lor \bigtriangledown Filters 🔅	5 Manage gateways	Search			
	Settings				
	Manage embed codes				

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

=	🕂 New 🕐 Ge	et help	
命 Home			
+ Create			
🗅 Browse	Data (previe	ew)	
🖯 Data hub	Data sources	On-premises data gateways	Virtual network data gateways

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

New data	source	×
Gateway clust	er name *	
ALEXW10		\sim
Data source n	ame *	
BI4Dynamics	BC PPU	
Data source ty	rpe *	
SQL Server		\sim
Server *		
ALEXW10		
Database *		
BI4Dynamics	BC PPU	
Authenticat	ion (j)	
Windows	lon method	~
Username *		
nps-group	lex	
Password *		
Skip tes	st connection	
Single sign-	on	
Use SSG	O via Kerberos for DirectQuery queries	(i)
Use SSG Import	D via Kerberos for DirectQuery and queries	i
Use SSG	D via Azure AD for DirectQuery queries	0
Create	Cancel	

Make sure that connection was established successfully.

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

=	My workspace
ம் Home	Q Search
💤 Favorites >	Workspaces
③ Recent >	BI4Dynamics - Mobile
+ Create	BI4Dynamics PPU TEST
🖯 Datasets	
😨 Goals	
₽ Apps	
A^R Shared with me	
🖉 Deployment pipelines	
Learn	
🖓 Workspaces <	
🔞 BI4Dynamics PP 🗟 🗸	

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

All Content Datas	ets + dataflows Datar	marts (Prev	ew)	
🗅 Name			Туре	Owner
BI4Dynamics BO	C PPU 💍		Dataset	BI4Dynamics PPU TEST
		Ar	alyze in Excel	
		Cr	ate report	
		Au	to-create report	
		Cr	ate paginated report	
		Cr	ate formatted table	
		De	ete	
		Ge	t quick insights	
		Se	curity	
		Re	name	
		Se	tings	
		Do	wnload this file	
		M	nage permissions	
		Vi	w lineage	J

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

	Gateway	Department	Contact information	Status	Actions
	Apply Discard - Gateway connection To use a data gateway, make ni gateway (dandar model, piek Use an On-premises or VN On	se select the corresponding dat	the data source is added in <u>Manager i</u> a sources and then click apply.	<u>Gateways</u> , Hyou're using an On-p	500 cherecters lef
	Befresh history A Dataset description Describe the contents of this data	iset.			
BIADynamics BC PPU	This dataset has been configur		scom. 00 (Central European Standard Tin	ne)	
BI4Dvnamics BC PPU	Settings for BI4Dyna	mics BC PPU			

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

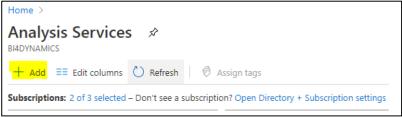
Use this option (also described as **Hybrid** option) for most Production environments where users connect to service with AAD (Azure Active Directory).

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

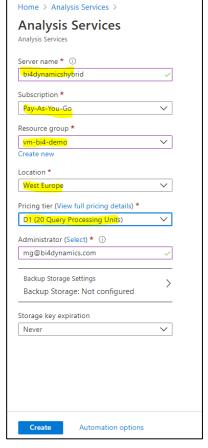
<u>Database size</u> (GB) will depend on data type, cardinality, and number of rows in your data warehouse

<u>QPUS</u> (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

Deployment succeeded
 B:22 AM
Deployment 'Microsoft AnalysisServices' to resource
group '\m-bi4-demo' was successful.
 Go to resource
 Pin to dashboard



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.

bi4dynamicshybrid	\$				
	+ New model Pause	e ightarrow Move 📋 Delete			
😤 Overview	Essentials \land				
 Activity log Access control (IAM) Tags Diagnose and solve problems Scale Pricing Tier (Scale QPUs) 	Resource group (change) vm-bi4-demo Status Active Location West Europe Subscription name (change) Pay-As-You-Go Subscription ID Oedf89a6-c40e-475e-99db-92	2b04d214475		Management Server Name	re.windows.net/bi4dynamicshybrid re.windows.net/bi4dynamicshybrid:rw
 Replicas Models Manage Settings Quick Start 	Models on Analysis S Name No results	ervices Server Compatibility	Date Modified	Last Synced Time	Sync State

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 Username Password

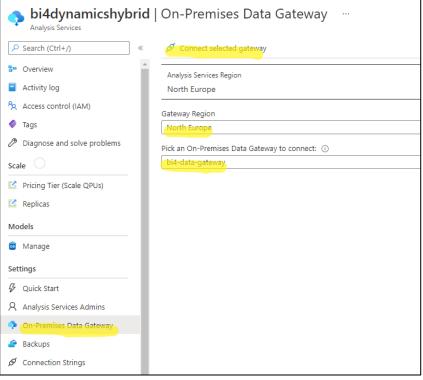
Here is a database that we have just created:

ject Explorer		
onnect 🕶 🏺 🎽 🗏 🝸 🕻	5 -M	
と asazure://westeurope.a	isazure.windows.net/bi4dynan	nicshybrid (Microsoft Analysis Server 15.1.76.24 - mg@bi4dynamic
🖃 🛑 Databases		
BI4Dynamics BC Connection	C OnPremise Hybrid	
Tables	5	
🕀 📕 Roles		
🗉 📕 Management		
-		
	Connect to Server	· X
	-	
		SQL Server
		SQL Server
	Server type:	SQL Server
	Server type: Server name:	
		Analysis Services
	Server name:	Analysis Services asazure://westeurope.asazure.windows.net/bi4dynamicst
	Server name: Authentication: User name:	Analysis Services Analysis Services asazure://westeurope.asazure.windows.net/bi4dynamicsł Azure Active Directory - Password
	Server name: Authentication:	Analysis Services asazure://westeurope.asazure.windows.net/bi4dynamicst Azure Active Directory - Password mg@bi4dynamics.com
	Server name: Authentication: User name:	Analysis Services asazure://westeurope.asazure.windows.net/bi4dynamicst Azure Active Directory - Password mg@bi4dynamics.com
	Server name: Authentication: User name:	Analysis Services asazure://westeurope.asazure.windows.net/bi4dynamicst Azure Active Directory - Password mg@bi4dynamics.com

2.4.3. Select On-Premises Data Gateway

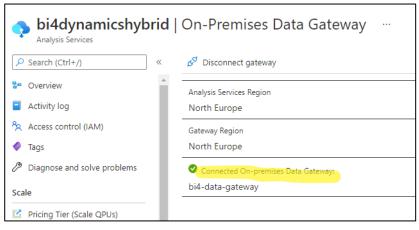
On-Premises Data Gateway is needed when Azure Service received data from On-Premises. When Azure Analysis Services is receiving data from On-Premises source than this option must be selected.

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.

Add Data Sou	rces		
Add all AX source da	itabases you wish to analyze in Bl4	4Dynamics to your BI4Dynam	nics instance.
Data source info	rmation	Dynamics 365 AX Co	onnector settings
Data Source Version:	D365 On-Premises 🔹	Services hostname URL	
Data Source SQL Datab	ase	Tenant id	
SQL Server Instance:	ALEXW10 -	Client app id	X
Database Name:	Microsoft Dynamics AX 7 🔹	Client secret key	
Authentication:	Windows Authentication 🔹	Username	
Azure Data source		Password	
Blob Data source			Test connection to AX Services Setup AX Languages
	Test connection to Sql Database		
	Add Data Source		
Data sources			

- 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.

ile Home	Share View			
· → • ↑ 📙	> This PC > Local Disk (C:) > Program Files (x86) 🔹 BI4Dynamics AX 🔸	BI4AX > 0 Setup >	MetaData
^	Name	Date modified	Туре	Size
Quick acces	AddMetaData	10/21/2021 5:58 PM	File folder	
📙 Debug 🖈	DeleteMetaData	10/21/2021 5:58 PM	File folder	
Debug 🖈	DataSourceMetaDataEnums.bi4meta	10/2/2021 9:57 PM	BI4META File	603 KE
📃 Desktor 🖈	DataSourceMetaDataTables.bi4meta	10/2/2021 9:57 PM	BI4META File	10,882 KE
BI4Dyna 🖈	ExcludeTableId	10/21/2021 5:58 PM	Text Document	1 KE
BI4Dyna 🖈	MetadataSetup	10/21/2021 5:58 PM	Text Document	1 KE
22-Pow 🖈	📓 SampleAddMetaDataEnums	10/21/2021 5:58 PM	XML File	2 KE
Bl4Dyna 🖈	ExcludeTableId	10/21/2021 5:58 PM 10/21/2021 5:58 PM	Text Document Text Document	1

File 🔻	Deploy Proces	s Customize	Stage Install	
Manage Model	Manage Dimensions	Reload Wizard Sources	Get MetaData	Documentation
Model	Dimensions	Wizard	Metadata	Help

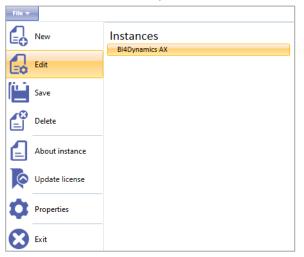
Go back to step Selecting Global Dimensions and continue instance creation.

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.

Instance name: BI4Dynamics AX Language: English (United States) Copy current instance Co	Copy Instance		Instance properties
SQL Server Analysis Services Database Name: Bl4Dynamics AX SQL Server Name: ALEXW10 Authentication: Windows Username: NPS-GROUP\alex Password eccentrations QL Database File Locations D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Data: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Copy current instance	BI4Dynamics AX	nstance name:
Database Name: BI4Dynamics AX SQL Server Name: ALEXW10 Authentication: Windows Username: NPS-GROUP\alex Password ••••••••• QL Database File Locations D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Data: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	es) 🔹	English (United States) 🔹	Language:
SQL Server Name: ALEXW10 • Authentication: Windows • Username: NPS-GROUP\alex Authentication: Password • QL Database File Locations D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Data: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Analysis Services		SQL Server
Authentication: Windows Authentication: Authentication: Azure Active Directory Username: NPS-GROUPhalex Username: spa@biddynamics.com Password •••••••••• Password: •••••••• QL Database File Locations SQL Analysis Server Option: Tabular Data: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ •• Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ ••	Analysis Database Name: BI4Dynamics AX	BI4Dynamics AX	Database Name:
Username: NPS-GROUP\alex Username: spa@bi4dynamics.com Password •••••••• QL Database File Locations Data: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ ••• Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ •••	SQL Analysis Server Name: asazure://eastus.asazure.windows.i	ALEXW10 -	SQL Server Name:
Data: D/SQL2019/MSSQL15.MSSQLSERVER\MSSQL\ Model: Import	Authentication: Azure Active Directory	Windows -	Authentication:
QL Database File Locations SQL Analysis Server Option: Tabular Data: D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ Model: Import Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Username: apa@bi4dynamics.com	NPS-GROUP\alex	Username:
Data: D\SQL2019\MSSQL15.MSSQL5ERVER\MSSQL\ Model: Import Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Password:	••••••	Password
Log: D\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	SQL Analysis Server Option: Tabular		QL Database File Locations
	15.MSSQLSERVER\MSSQL\ Model: Import	D:\SQL2019\MSSQL15.MSSQLSERVER\M	Data:
iQL Database Collation: Latin1_General_CI_AS •	15.MSSQLSERVER\MSSQL\	D:\SQL2019\MSSQL15.MSSQLSERVER\N	Log:
	s 🔹	Latin1_General_CI_AS	QL Database Collation:
Integration Services		s	Integration Services
SQL Integration Service 🗹		\checkmark	SQL Integration Service
SSIS Server name: ALEXW10 Ver. 15.0	Ver. 15.0	0 Ver. 15	SSIS Server name: ALEXW10

4. Click Save & Restart Instance.

Page 27

3.2. Copy instance

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

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

File 🔻		
E.	New	Instances BI4Dynamics AX
		DI4Dynamics AX
Ε¢	Edit	
Ë	Save	
	Delete	
E	About instance	
Ø	Update license	
\$	Properties	
8	Exit	

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.

Instance properties		Copy Instance	
nstance name:	BI4Dynamics AX	Copy current instance	
anguage:	English (United States)	Instance Copy name:	BI4Dynamics AX COPY
SQL Server		Analysis Services	
Database Name:	BI4Dynamics AX	Analysis Database Name:	BI4Dynamics AX
QL Server Name:	ALEXW10 -	SQL Analysis Server Name:	ALEXW10
Authentication:	Windows 🔹	Authentication:	Windows -
QL Database File Locations		Username:	NPS-GROUP\alex
Data: Log:	D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\ D:\SQL2019\MSSQL15.MSSQLSERVER\MSSQL\	Password:	
QL Database Collation:	Latin1_General_CI_AS 🔹	SQL Analysis Server Option:	Tabular 🗸
		Model:	Import -
Integration Services			
QL Integration Service	\checkmark		
SIS Server name: ALEXW10	Ver. 15.0		

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**.

File 🔻 🛛	Deploy Proc	ess Customi	<mark>ze 1</mark> Stage I	nstall 3					
Manage Model	Manage Partitions	Manage Dimensions	Reload Wizar Sources	d Get MetaData	Auto update Update from N Update from II Update from II		Documentation	D	Export
Mo	odel	Dimensions	Wizard		Metadata		Help	Tra	Inslations
s a last : File T Dep		n Process t	ab and click	Process.					
		Customize Stage	e Install ∂ Stage Data Warehouse			4Dynamics BC First Ir 3/09/2022		Create	Account schedules

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

Edit SSIS	 Full Incremental 	Process V	- ⇔ Stage stage Data Warehouse Maalysis Database	Full	▼ Database ▼	Name: Start:	BI4Dynamics BC First Instance	Create	Account schedules
Process Flow SSIS	Update	Process All		Process one			SQL Agent Job		Extra
1	2	3		4			5		6

- 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:

File 🔻 De	ploy Process	Customize	Stage	Install	
Edit SSIS	BI4Dynamics		•••Reset 🍋 Reload	Remove Add	Remove Add
	Process Flov	v SSIS		Object group	SSIS package
	1			2	3

- 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

Edit Proc Flow SSIS ×								
Object group 1	Proces	s step:	5	4				Rename 5
No Name Custom	✓ Include	Order	Process Object Name	Object subgroup	Executed	Custom	Last exec time (sec)	Object subgroup
SSIS 🗸	✓	166	Run [fact].[TruncateExecutionLog]	CubeFramework	×		0	Current AccountSched
SnapshotDate	✓	167	Run [fact].[TruncateEmployeeAbsence]	EmployeeAbsence	×	-	0	New
2 Snapshot	✓	168	Run [fact].[LoadEmployeeAbsence]	EmployeeAbsence	×	~	0	Update
B DimDate	✓	169	Run [fact].[TruncateFAEntry]	FAEntry	×		0	
1 DimHelp	✓	170	Run [fact].[LoadFAEntry]	FAEntry	×	×	0	
DimLoadBefore	✓	171	Run [fact].[TruncateMaintenanceEntry]	MaintenanceEntry	×	~	0	
5 DimLoad	1	172	Run [fact].[LoadMaintenanceEntry]	MaintenanceEntry	×	~	0	
7 DimLoadAfter	~	173	Run [fact].[TruncateMaintenanceRegistration]	MaintenanceRegistration	×	~	0	
B FactDropConstraintIndex	✓	174	Run [fact].[LoadMaintenanceRegistration]	MaintenanceRegistration	×	~	0	
9 FactHelp	✓	175	Run [fact].[TruncateAccountSchedule]	AccountSchedule	×	1	0	
0 FactLoadBefore	✓	176	Run [fact].[LoadAccountSchedule]	AccountSchedule	× .	× .	0	
1 FactLoad	✓	177	Run [fact].[LoadAccountScheduleMany]	AccountSchedule	×	~	0	
2 FactLoadAfter	~	178	Run [dim].[UpdateCustomRollupCalculation]	AccountSchedule	×	~	0	
3 FactCreateConstraintIndex	✓	179	Run [fact].[TruncateAccountScheduleCostAccounting]	AccountScheduleCostAccounting	×	~	0	
	2		3					

3.3.2. Explanation of process flow table functionality

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

✓	170 Run [fact].[LoadFAEntry]		
✓	171 Run [fact].[TruncateMaintenanceEntry]	SSIS	у
~	172 Run [fact].[LoadMaintenanceEntry]	SnapshotDate Snapshot	y
~	173 Run [fact].[TruncateMaintenanceRegistration]	DimDate	ist
~		DimHelp	
	174 Run [fact].[LoadMaintenanceRegistration]	DimLoadBefore	ist
\checkmark	175 Run [fact].[TruncateAccountSchedule]	DimLoad	5
\checkmark	176 Run [fact].[LoadAccountSchedule]	DimLoadAfter	2
~	177 Run [fact].[LoadAccountScheduleMany]	FactDropConstraintIndex	
_	(act).[LoadAccountScheduleMany]	FactHelp	ĺ
\checkmark	178 Run [dim].[UpdateCustomRollupCalculation]	FactLoadBefore	5
\checkmark	179 Run [fact].[TruncateAccountScheduleCostAccount	FactLoad FactLoadAfter	۰C
~	180 Run [fact].[LoadAccountScheduleCostAccounting]	FactCreateConstraintIndex	C

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

Cubes	Facts				
Cube Name	Use Fact Name	Date field to partition by	Process last # partitions (Including current and all future	Deploy	Process
Common Measures	GL Analysis	DateID	▼ 3 ¹	V	~
FA Analysis	GL Budget	DateID	▼ 3 ⁺		
GL Analysis					
Inventory Analysis					
Payables Analysis					
Product Information Analysis					
Production Analysis					
Project Analysis					
Purchase Analysis					
Receivables Analysis					
Retail Analysis					
Sales Analysis					
Save Reset Generate Deploy All	Reset Process All Deploy Process				

- 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

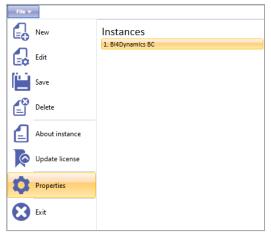
During the installation, the following error might occur on stage:

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

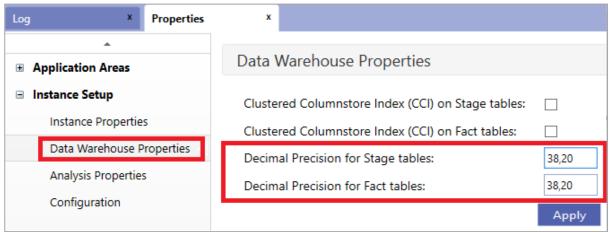
It should be addressed by increasing the precision (e.g. from 19 to 38) and scale (e.g. from 5 to 20). The default maximum precision of numeric and decimal data types is 38.

To change it in application you need to:

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

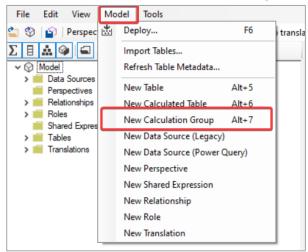


- 2. Under Instance Setup > Data Warehouse Properties precision could be set up for:
 - Stage tables
 - Datawarehouse tables

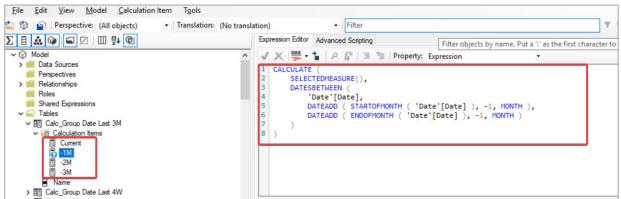


3.6. Adding Calculation groups

- 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

✓ In Calc_Gr ✓ In Calcu	Create New	•		
Cur Cur 2.1N 2.2N 3.0	Make invisible Ctrl+I			
-2N	Show in Perspectives	•		
III -3N ■ Name	Hide in Perspectives	•		
> E Calc_Gr	Duplicate Calculation Group			
> III Common	Delete "Calc_Group Date Last 3M"			
> III Common	Delete Calc_Group Date Last SM		A1 1	
> III Fixed As	Script	•	Create or Replace	To clipboard
> III Employee			Create	To file
> III Fixed Asset				cegence
> III Document FA	Lending		Alter	
> III Fixed Assets S	Statistics		Delete	•
N Fixed Acceste [Depreciation			

7. Open BI4Dynamics application and open instance

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

File 🔻	Deploy Pro	cess Customize	e Stage Instal	Cloud	ETL		
Manage Model	Manage Partitions	Manage Dimensions	Reload Wizard Sources	Get MetaData	Auto update Update from NAV Update from Instance folder	Documentation	Export
	Model	Dimensions	Wizard		Metadata	Help	Translations

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

Total number of wizard dir	mensions: 103						
New Dimension	Edit Dimension	Edit Hierarchies		N	ew Calc. group	Edit	
Delete	Save	Update Now			Delete	Save	Update Now
Generate	Generate All				Generate All		
BI4AX			×				
Add a new Calculatio	on Group						
Name:							
Calc_Group1							
TmsI command:							
"isHidden": true, "sourceColumn": "Ordinal"							
}],							
"partitions": [{							
"name": "Partition", "mode": "import", "source": {							
"type": "calculationGroup"							
}							
], "annotations": [
"name": "BI4-Cust-Type",							
"value": "BI4-DIM-CALC-GF	ROUP"						
}							
}			Ð				
		Add C	ancel				
		- Add C					

10. Update and Generate all under Calculation groups

11. Deploy and Process analysis database

3.7. 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 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

\odot		
New	Options and settings	■ 🕓 A
Open report	~	uick Sensitivity Publish
Save	දOb Options	asure (preview) - is Sensitivity Share
Save as	Data source settings	
Get data		
Import		
Export		Avg Stock Value Stock Turn Days () 4.09M 669
Publish		.) 4.071VI 007
Options and settings		i) (Blank) 299
Get started		

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

SQL Server Analysis Services database		
ierver asazure://eastus.asazure.windows.net/bi4dynamicsanalysisservicesdfo		
Database BI4Dynamics DFO		

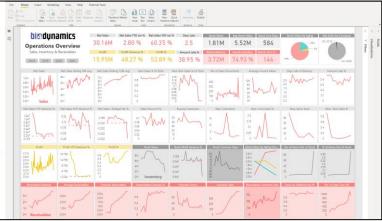
4.2.2. Creating a new connection

- 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*

erver (i)			
asazure://eastus.asazure.windows.net	/bi4dynamicsanalysisservices	sdfo	
Database (optional)			
BI4Dynamics DFO			
O Import			
Connect live			
MDX or DAX query (optional)			

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.

H															bool
File	н	ome	Insert	Page Layout	Formulas	Data Re	eview	View	Developer		Add-ins	Ŷ	Tell me what y	ou want to d	o
From Access	From Web	From Text Get Ex	🍃 🤇	r Existing Connections from SQL Server create a connection able or PrivotTable	New Query + Co	Show Queries From Table Recent Sources		h 🔝 Prop	erties Links	2↓ Z↓	Sort	Filter	Clear Reapply Advanced	Text to Columns	Fla Fla
1	А	В		rom Analysis Ser Create a connection nto Excel as a Tab	vices on to a SQL Se		ervices cub	e. Import d	lata		J	к	L	М	
2 3				rom OData Data Create a connectio Table or PivotTable	n to an ODat	a Data Feed. Im	iport data i	nto Excel a	s a						
4 5 6				rom XML Data Ir Open or map a XN		cel.									
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12															

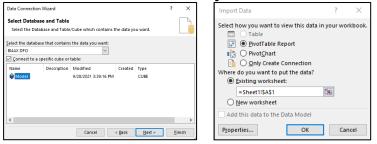
6. Insert a **Server name**

Data Connection Wizard	? X	Data Connection Wizard
Connect to Database Server Enter the information required to connect to the database server.		Connect to Database Server Enter the information required to connect to the database server.
1. Server name: BDVHAMCCERVER 2. Log on credentals		1. Server name: 2. Log on oredestate: @ Una <u>Workson</u> Authentication Una <u>Una Vorkson</u> Authentication
User Name: Password: Cancel < Back Nett >	Finish	Uter lame Protected

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

Connection Propert	les	r X
Connection <u>n</u> ame: Description:	BI4AX DFO Model	
Description.		
Usage Definitio	n	
Connection type:	Office Data Connection	
Connection <u>f</u> ile:	C:\Users\alex\Documents\My Data Sc	<u>B</u> rowse
	Always use connection file	
Connection <u>s</u> tring:	Provider=MSOLAP.8:Integrated Securit Security Info=True;Initial Catalog=BI4 Source=;MDX Compatibility=1;Safety (2;MDX Missing Member Mode=Error;U Isolation Level=2	X DFO <mark>;Data</mark> Options=
	Save pass <u>w</u> ord	
Command type:	Cube	\sim
Command text:	Model	
Excel Services:	Authentication Settings	
Edit Query	Parameters Export Connection File	
	ОК	Cancel

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

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	Δ	В	с	D	E	F 🔺					
	Company	All	C	D	6	- F	PivotTable Fields				- >
	Customer by Post								Drag fields be	tween areas below:	
-	easterner by 1 os						Show fields: (All)	-(h -			
	Row Labels	 Avg Receivable 	Customer Net 9	% Receivables	Sales On Credit				▼ FILTERS		
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	± 2010	1.010.116,26	563.732,89	,38	7.915.596,64		Customer Net Change				
	■ 2011	1.656.079,38	1.980.774,71	,43	11.393.663,21		Sales			s	
	■ 2012	3.330.724,69		1,00			✓ Sales On Credit		Σ Values		
0	■ 2013	3.330.724,69		1,00			Sales on Credit (in %)		Z Values		
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ţ							Δ Σ Receivables Analysis				
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7							✓ % Receivables Overdue				
3							Avg Due Days Receivables		Σ VALUES		
9							Avg Open Days Receivables		Avg Receiva		
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	← → She	et1 BI4Dynam	ics 🕂			Þ			Defer Layo	out Update	UPDATE

You have successfully connected Power BI to Analysis Services model.