

Azure SQL Virtual Machine (VM) installation for BI4Dynamics FO

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1. About BI4Dynamics FO installation

1.1. Infrastructure and application installations

BI4Dynamics SaaS installation comes in two steps:

1.1.1. Infrastructure part: installation of Azure Virtual Machine

- 1. Azure resources must be prepared ahead of BI4Dynamics application installation. Installation is focused on the creation and setting of Azure Virtual Machine.
- **1.1.2.** Application part: installation of BI4Dynamics application
- 2. **BI4Dynamics application on VM is very similar to an** on-premises installation. Here is the link to installation documentation: <u>https://www.bi4dynamics.com/documents/</u>

1.2. Installation of Azure VM

This document will guide you through the installation of Azure VM and the resources needed to run BI4Dynamics Cloud.

1.2.1. Installation documentation from Microsoft

Microsoft documentation **How to use the Azure portal to provision a Windows virtual machine with SQL Server** has more details that needed in BI4Dynamics process:

https://docs.microsoft.com/en-us/azure/azure-sql/virtual-machines/windows/create-sql-vm-portal#4configure-sql-server-settings

You do not need to use this documentation if you follow BI4Dynamics installation described in below.

1.2.2. Prerequisites

User must be **administrator** in Azure portal with active **Azure subscription**.

1.2.3. Deliverables

✓ SQL Virtual Machine to host BI4Dynamics data warehouse

1.2.4. Expected installation time

Time needed:



Deployment time of Azure resources may vary 50% (no rule in respect of daytime or region).

2. Create Azure SQL Virtual Machine

2.1. Create Azure SQL

2.1.1. Login to azure portal

Login to Azure portal: <u>https://portal.azure.com/#home</u>

2.1.2. Create VM as Azure SQL Service

Select Azure SQL



Do not use Virtual machine ikon, as that will install VM without SQL server pre-installed and would require SQL server installation separately. Use Azure SQL option, that is VM with SQL server preinstalled.

Click Add



Select SQL Server 2019 Standard on Windows Server

do you plan to use the service.		
SQL databases	SQL managed instances	SQL SQL virtual machines
Best for modern cloud applications. Hyperscale and serverless options are available.	Best for most migrations to the cloud. Lift-and-shift ready.	Best for migrations and applications requiring C level access. Lift-and-shift ready.
Resource type	Resource type	Image
Single database 🗸 🗸	Single instance 🗸	SQL Server 2019 Standard on Windows Ser
Create Show details	Croto Show details	Create Show details
Create Show details	Create Show details	Create Show details

Click Create



- Create or select **Resource Group.**
- Set virtual machine **Name** and **Region**.

Create	a vir	rtual mac	hine				
Basics D	Disks	Networking	Management	Advanced	SQL Server settings	a Tags	Review + create
Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. Learn more C ⁴							
Project det	tails						
Select the su your resource	ubscripti ces.	ion to manage d	eployed resources	and costs. Use	resource groups like fo	lders to org	anize and manage all
Subscription	1* 🛈		Pay-As-Yo	ou-Go			\checkmark
Reso	ource gr	oup * 🛈	(N <mark>ew)</mark> vm Create new	-bi4-demo			~
Instance de	etails						
Virtual mach	nine nan	ne * 🕕	vm-bi4-d	emo			\checkmark
Region * ①			(Europe)	West Europe			\checkmark
Availability of	options	0	No infrast	tructure redund	ancy required		\sim
Image * 🕕			SQL Serve See all imag	er 2019 Standar ges	d on Windows Server 2	019 - Gen1	~
Azure Spot i	instance	• ①					
Size * 🕕			Standard See all size	<mark>B2ms - 2 vcpu</mark> s	, 8 GiB memory (€64.0.	2/month)	\vee

• Select **Size** that will support your data load (a new window will open for this selection):

Search by VM size	Display cost : Monthly VCPUs : 2	RAM (GiB) : 8	l filter			
Showing 13 of 408 VM sizes. Sub	oscription: Pay-As-You-Go Region: Wes	t Europe Current size: Stan	dard_B2ms Image: S0	QL Server 2019 Standard or	Windows Server 2019	। Learn more about VM sizes ☞
VM Size \uparrow_\downarrow	Family ↑↓	vCPUs ↑↓	RAM (GiB) ↑↓	Data disks ↑↓	Max IOPS ↑↓	Temp storage (GiB) ↑↓
✓ Most used by Azure users ↗		The most used sizes by users i	n Azure			
D2s_v3 🗡	General purpose	2	8	4	3200	16
B2ms 🛹	General purpose	2	8	4	1920	16
✓ D-Series v4		The latest generation D family	sizes recommended for y	our general purpose need	•	
D2as_v4	General purpose	2	8	4	3200	16
D2ds_v4	General purpose	2	8	4	3200	75
D2s_v4	General purpose	2	8	4	3200	0
∨ B-Series		Ideal for workloads that do no	t need continuous full CPU	J performance		
B2ms 🛹	General purpose	2	8	4	1920	16
> D-Series v3		The 3rd generation D family si	zes for your general purpo	ose needs		

- Click Select
- Enter Administrator account: this is a new account; you cannot use any existing AD, AAD or other account.

Administrator account		
Username * 🕕	vm-admin-user.	ſ
Password * ①	·····	^
Confirm password * 🕕		ſ

Leave default values on **Disks**, **Networking, Management, Advanced** or change it according to your needs.



Click on SQL Server Settings tab

- SQL Connectivity select Public (Internet)
- **SQL Authentication** select **Enable** (default Login name and password from VM is populated automatically)
- Under storage section click **Change configuration** and select the setup (separate or shared) configuration and size of your SQL data disks.

Home > Azure SQL > Select SQL depl	loyment option >	Configure storage					×
Create a virtual machi	ne	5 5					
		Storage optimization 🕕	General	Transactional processin	g Data warehousing		
Basics Disks Networking M	anagement Advanced SQL Server settings Tags Review + create	Data storage					
Security & Networking		These disks will be attached to you	r virtual machine as da	ta disks and will be stor	red in storage as page blobs.		
SQL connectivity *	Public (Internet)	Data drive location * 🕠	Disk type * 💿				
Port *	1433	F\data 🗸	Premium SSD	\sim			
COL Authoritication		Disk type	Size (GiB)	Max IOPS	Max Throughput	Number of disks	
SQL Authentication	Dirable Faable	32 GiB, Premium SSD (P4) 🗸	32	120	25	1	
age Addrendcadori ()					6	32 GiB, 120 IOPS, 25 MB/	s
Login name * 🕕	vm-admin-user 🗸	Log storage					
Password * ①		Transaction logs are a critical comp transaction.	onent of the database	as they record all transa	actions and database modificat	tions made by each	
Azure Key Vault integration ③	Disable Enable	Shared drive space *	Log drive location *	Disk	type * ①		
		Use a separate drive for Io V	G:\log	V Pre	emium SSD V		
storage configuration		Distance	ci (cin)	14	ter Theorem		
Customize performance, size, and worklo separate drives will be created for data a	ad type to optimize storage for this virtual machine. For optimal performance, nd log storage by default. Learn more about SQL Server best performance practices.	Disk type	Size (GIB)	Max IOPS	Max Inroughput	Number of disks	e.
		16 GIB, Premium SSD (P3)	16	120	25	1	
The default storage configuration fo	r SQL virtual machines has changed, now including OLTP optimization and separate	TempDb storage			U.	10 GIB, 120 IOP3, 23 MB/:	,
drives for data and log storage.		The tempDb system database is a	alobal resource that is a	available to all users con	nnected to the instance of SQL	Server. It is used to store	
Storage	Storage ontimization: Transactional processing	temporary user objects and interna	I objects created by th	e database engine.			
storage	SQL Data: 1024 GiB, 5000 IOPS, 200 MB/s	Shared drive space * ④	TempDb drive locat	ion * 🕕			
	SQL Log: 1024 GiB, 5000 IOPS, 200 MB/s SQL Te <mark>mpDb: Use</mark> local SSD drive	Use local SSD drive V	D:\tempDb				
	Change configuration						
SQL Server License		A The desired performance mig	ht not be reached due to	the maximum virtual mac	chine disk performance cap. The	selected VM size	
		(Standard_B2ms) only support	is up to 22.5 disk max thr	oughput in MBps (current	tly 50 in MBps).		
Review + create < Pre	vious Next : Tags >	Ok Discard					
4							

Default VM disk configuration comes with 4 disks:

- C: 128 GB for **operating system** (default option in VM SKU)
- D: 16 GB for temporary files (default option in VM SKU)
- F: 1 TB for **SQL data** (default option in VM SQL installation)
- G: 1 TB for **SQL log** (default option in VM SQL installation)

Default disk configuration for 2 data disks are SSD Premium disks, 1 TB each. **Check which disk type you need**.

It may happen that the costs of default VM SQL data disks are higher than the cost of provisioned core VM with SQL server.

 Windows (C:)	Temporary Storage (D:)
103 GB free of 126 GB	14.0 GB free of 15.9 GB
SQLVMDATA1 (F:)	SQLVMLOG (G:)
0.99 TB free of 0.99 TB	0.99 TB free of 0.99 TB

Click on **Tags** and leave default values (or change it according to your needs) Click on **Review + create** to validate the settings

🕑 Val	lidation pas	sed					
Basics	Disks	Networking	Management	Advanced	SQL Server settings	Tags	Review + create

Click Create to create your VM (deployment will take 5-10 minutes, depends on geo location and time):

Home >							
	ftsqlserver.sql2019-ws2019-star	nda-20210106145601 Overview 🖉	×				
	👔 Delete 🚫 Cancel 🏥 Redeploy 🖒 Refre	sh					
👶 Overview	We'd love your feedbacki →						
😲 inputs							
3 Outputs	Deployment is in progress						
Part Template	Deployment name: CreateVm-microsoftsgise Subscription: Pay-As-You-Go Resource group: vm-bi4-demo Deployment details (Download)	versql2019-ws2019-s Start time: 1/6/2021, 3/21/23 PM Correlation ID: 5527a445-02bd-4720-bb10-0e5	59a41a823				
	Resource	Туре	Status	Operation details			
	o vm-bi4-demo	Microsoft.Compute/virtualMachines	Created	Operation details			
	😋 vm-bi4-demo5	Microsoft.Network/networkInterfaces	Created	Operation details			
	🙁 vm-bi4-demo_DataDisk_1	Microsoft.Compute/disks	OK	Operation details			
	vm-bi4-demo_DataDisk_0	Microsoft/Compute/disks	ОК	Operation details			
	🗢 vm-bi4-demo-vnet	Microsoft.Network/virtualNetworks	OK	Operation details			
	🗢 vm-bi4-demo-nsg	Microsoft.Network/networkSecurityGroups	OK.	Operation details			
	📀 vm-bi4-demo-ip	Microsoft.Network/publiclpAddresses	OK	Operation details			

With this step we have created a VM.

0	Your deployment is complete
Ţ	Deployment name: CreateVm-microsoftsqlserver.sql2019-ws2019 Subscription: Pay-As-You-Go

In next steps we will configure VM.

You have successfully created VM.

2.2. Configure Virtual Machine

2.2.1. Set public IP and DNS name



Go to resource Virtual Machine and click Configure in DNS name:

vm-bi4-demo ≉ virtual machine						
Р βearch (Ctrl+/) ≪	🖋 Connect ▷ Start 🤇 Restar	t 📃 Stop 🞉 Capture 📋 Delete 💍 Refresh 🔋 Open in mobile				
Overview	∧ Essentials					
Activity log	Resource group (change) : vm-bi4-de	mo	Oper	rating system	: Windows (Win	ndows Server 2019 Datacenter)
Access control (IAM)	Status : Running		Size		: Standard B2m	s (2 vcpus, 8 GiB memory)
Taos	Location : West Euro	pe	Publ	ic IP address	: 20.71.160.76	
- lags	Subscription (change) : Pay-As-Yo	u-Go	Virtu	al network/subne	et : vm-bi4-demo	-vnet/default
Diagnose and solve problems	Subscription ID : 0edf89a6	c40e-475e-99db-92b04d214475	DNS	name	: Configure	
Settings	Tags (change) : Click here	to add tags				
2 Networking						
🖉 Connect	Properties Monitoring Capa	bilities (7) Recommendations Tutorials				
8 Disks	📮 Virtual machine		2	Networking		
📮 Size	Computer name	vm-bi4-demo		Public IP addres	55	20.71.160.76
Security	Operating system	Windows (Windows Server 2019 Datacenter)		Public IP addres	is (IPv6)	
Advisor recommendations	Publisher	microsoftsqlserver		Private IP addre	ISS	10.0.1.4
	Offer	sql2019-ws2019		Private IP addre	ss (IPv6)	
Extensions	Plan	standard		Virtual network	/subnet	vm-bi4-demo-vnet/default
🐔 Continuous delivery	VM generation	V1		DNS name		Configure

Select Assignment: **Static IP** (message about rebooting will appear, you will reboot later) Enter **DNS name** (hint: name can be the same as virtual machine name).

Click on Save

wm-bi4-demo-ip Co	onfiguration
	🔚 Save 🗙 Discard
Cverview	
Activity log	A The associated virtual machine 'vm-bi4-demo' may be rebooted. Click here to learn more.
Access control (IAM)	
Tags	Assignment O Dynamic
Settings	IP address ①
Configuration	20.71.160.76
Properties	Idle timeout (minutes)
🔒 Locks	0
Monitoring	DNS name label (optional) ③ vm-bi4-demo

go back to main Virtual machine page

Home > CreateVm-microsoftsqlserver.sql2019-ws2019-standa-20210106145601 > vm-bi4-demo > vm-bi4-demo-ip

And click Refresh

🖋 Connect ▷ Start	: 🤆 Restart 🔲 Stop 🞉 Capture 📋 Delete 🏷 Refresh 🔋 Open in mobile		
∧ Essentials			
Resource group (change) : tv-bc-test	Operating system	: Windows (Windows Server 2019 Datacenter)
Status	: Running	Size	: Standard B2ms (2 vcpus, 8 GiB memory)
Location	: North Europe	Public IP address	: 13.69.147.100
Subscription (change)	: Pay-As-You-Go	Virtual network/subnet	: tv-bc-test-vnet/default
Subscription ID	: 0edf89a6-c40e-475e-99db-92b04d214475	DNS name	: tv-bc-test.northeurope.cloudapp.azure.com

We click refresh to get the DNS name updated. DNS name will be used for accessing VM from your local PC. Copy and paste DNS name to temporary Notepad file. We will need this information later when creating RDP access to VM.



Our demo DNS name is vm-bi4-demo.westeurope.cloudapp.azure.com

2.2.2. Setup RDP connection

Click on **Connect** button on header toolbar 📭 vm-bi4-demo 📝 ~ 🔗 Connect 🕞 Start 🦿 Restart 🔲 Stop 🔯 Capture -∧ Essentials 📮 Overview

Resource group (change) : vm-bi4-demo

and select RDP and Download RDP File.

RDP	SSH	BASTION					
Conn	ect wit	h RDP					
To connect to your virtual machine via RDP, select an IP address, RDP file.							
IP add	IP address *						
DNS name (vm-bi4-demo.westeurope.cloudapp.azure.com)							
Port nu	umber *						
3389							
Download RDP File							

Activity log

You have downloaded RDP file to download folder. File name is the VM name.

This PC > Downloads	ٽ ~	🔎 Search Downloads	
Name	Date modified	Туре	Size
a vm-bi4-demo.rdp	06/01/2021 16:04	Remote Desktop Connection	1 KB

You have successfully created and configured VM.

3. Setup Virtual Machine

We have created a VM in previous step. Now we continue with settings and adding resources to VM.

3.1. Connect to Virtual Machine.



Click on **RDP file** that you have saved to download folder in previous steps

This PC > Downloads	🔎 Search Downloads		
Name	Date modified	Туре	Size
💀 vm-bi4-demo.rdp	06/01/2021 16:04	Remote Desktop Connection	1 KB

and click Connect:



Enter administrator account credential that you have entered for this VM. Login does not require domain therefore start the name with **** followed by the **Name**.

Windows Security	×
Enter your credentials	
These credentials will be used to connect to vm-bi4- demo.westeurope.cloudapp.azure.com.	
\vm-admin-user	
•••••	
Domain:	
Remember me	

Click **OK**

This window will pop-up. Check **Don't ask me again for a connection to this computer**.



and click Yes to connect.

Now you should be connected to VM with RDP. Your screen should look like this:



Server Manager is started automatically.

You are connected to VM by using RDP access.

3.2. Setup SQL Server Analysis Services

SQL Server Analysis Services is by default running as services. We need to change it to user (administrator that we created).



Go to **SQL Server 2019 Configuration Manager** and go to **SQL Server Services** menu:



Change Log-on Account for SQL Server Analysis Services

to VM admin account:

SQL Serv	er Analy:	sis Service	s (MSS	QLSERV	ER) Prop	perties		?	X
Log On	Service	Advance	d						
Log on	as:								
C Buil	lt-in accou	unt:				-			
• This	s account					_			
Acc	ount Nam	e:	.\vm-	admin-us	er		E	Browse	
Pas	Password:								
Con	ifirm pass	word:	****		****				
Service	status:			Runn	ing				
St	tart	Sto	n	Р	ause	1	F	Restart	1
_									
	_				_		_		

Set start mode to Automatic: SQL Server Analysis Services (MSSQLSERVER) Properties X ? Log On Service Advanced General "C:\Program Files\Microsoft SQL Se **Binary Path** Error Control Exit Code 1077 Host Name vm-bi4-demo Name Process ID SQL Server Analysis Services (MSSQ SQL Service Type Analysis Server Start Mode Automati Stopped • State Start Mode The start mode of this service.

OK Cancel Apply Help

And **Start** the service.

4. Result

4.1. Information needed for BI4Dynamics application installation

These fields created in this installation will be needed in BI4Dynamics **application** installation.

4.1.1. Information about Azure SQL Virtual Machine

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

4.2. Next step – BI4Dynamics applications installation

Here is document to install BI4Dynamics FO: https://www.bi4dynamics.com/documents/