

Infrastructure preparation BC Cloud on Azure Virtual Machine

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1 About BI4Dynamics BC Cloud installation

1.1 Infrastructure and application installations

BI4Dynamics SaaS installation comes in two steps:

1.1.1 Infrastructure part: installation of Azure Virtual Machine

Azure resources must be prepared ahead of BI4Dynamics application installation. Installation is focused on creation and setting of Azure Virtual Machine.

1.1.2 Application part: installation of BI4Dynamics application

BI4Dynamics application on VM is very similar to 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 installation of Azure VM and 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#4-

configure-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 and App Dev in Azure portal with active Azure subscription.
- User must have EXTEND.MGT. ADMIN and SUPER permissions set in Business Central (D365 EXTENSION MGT prior to Business Central 2021).

1.2.3 Deliverables

- ✓ SQL Virtual Machine with PolyBase and some Azure modules to host BI4Dynamics data warehouse
- ✓ Blob Storage Account with Container to store data exported from BC

1.2.4 Expected installation time

First time user:



Installation step	Time (min)
Creating Virtual Machine,	15
Setting up Virtual Machine	30
Blob Storage and Container instance	15
Total time	60

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: https://portal.azure.com/#home

2.1.2 Create VM as Azure SQL Service



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

ſ	Azure SQL 🖈	
	+ Add 🕓 Reservations	🛞 Manage view ∨ 🕐 Refresh 🞍 Export to CSV 📽 Open query 🛛 ⊗ Assign tags 🏦 Delete
	Filter by name	Subscription == all \times Resource group == all \times Location == all \times $+_{\nabla}$ Add filter

Select SQL Server 2019 Standard on Windows Server

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

Click Create

Settings start on **Basic** tab:

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

Create a virtual mach	ine				
Basics Disks Networking M	Vanagement	Advanced	SQL Server settings	Tags	Review + create
Create a virtual machine that runs Linux image. Complete the Basics tab then Ru tab for full customization. Learn more	eview + create to				
Project details					
Select the subscription to manage deplyour resources.	loyed resources	and costs. Use	resource groups like fold	ers to org	anize and manage all
Subscription * ①	Pay-As-Yo	ou-Go			\sim
Resource group * 🛈	(N <mark>ew) vm</mark> Create new	-bi4-demo			\checkmark
Instance details					
Virtual machine name * ①	vm-bi4-d	emo			~
Region * ①	(Europe)	West Europe			\sim
Availability options ①	No infrast	tructure redund	ancy required		\sim
Image * 🕕	SQL Serve See all imag		d on Windows Server 20	19 - Gen1	~
Azure Spot instance 🕕					
Size * 🛈	Standard See all size		;, 8 Gi <mark>B memory (€64.02</mark> /	month)	~

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

Search by VM size	isplay cost : Monthly VCPUs : 2	RAM (GiB) : 8	d filter						
Showing 13 of 408 VM sizes. Subsci	howing 13 of 408 VM sizes. Subscription: Pay-As-You-Go Region: West Europe Current size: Standard_B2ms Image: SQL Server 2019 Standard on Windows Server 2019 Learn more about VM sizes 🕑								
VM Size ↑↓	Family ↑↓	vCPUs ↑↓	RAM (GiB) ↑↓	Data disks ↑↓	Max IOPS \uparrow_{\downarrow}	Temp storage (GiB) ↑↓			
✓ Most used by Azure users ↗	✓ Most used by Azure users ↗ The most used sizes by users in 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	y sizes recommended for y	our general purpose ne	eeds				
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	ot need continuous full CP	J performance					
B2ms 📌	General purpose	2	8	4	1920	16			
> D-Series v3		The 3rd generation D family s	izes for your general purp	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
Password * 🕕	······
Confirm password * 🕕	

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



Click on SQL Server Settings tab

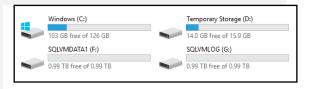
- SQL Connectivity select Public (Internet)
- SQL Authentication select Enable (default Login name and password from VM is populated automatically)
- Under storage section click **Change configuration** and select the setup (separate or shared) configuration and size of your SQL data disks.

Home $>$ Azure SQL $>$ Select SQL deployment option $>$		Configure storage				×
Create a virtual machine						
		Storage optimization ③	General	Transactional processing	Data warehousing	
Basics Disks Networking Management Adv	vanced SQL Server settings Tags Review + create	Data storage				
Security & Networking		These disks will be attached to you	r virtual machine as dat	ta disks and will be store	d in storage as page blobs.	
SQL connectivity * Public (Internet) V	Data drive location * 🕤	Disk type * 💿			
Port * 1433		F:\data 🗸	Premium SSD	\sim		
SQL Authentication		Disk type	Size (GiB)	Max IOPS	Max Throughput	Number of disks
SQL Authentication ① Disable	ble	32 GiB, Premium SSD (P4)	32	120	25	1
					•	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 transac	tions and database modifica	tions made by each
Azure Key Vault integration ① Disable Ena	ible	Shared drive space * (i)	Log drive location *	① Disk to	/pe * 🕕	
Storage configuration		Use a separate drive for Io 🗸	G:\log	✓ Pren	nium SSD 🗸 🗸]
Customize performance, size, and workload type to optimize		Disk type	Size (GiB)	Max IOPS	Max Throughput	Number of disks
separate drives will be created for data and log storage by de	efault. Learn more about SQL Server best performance practices.	16 GiB, Premium SSD (P3) 🗸	16	120	25	1
					•	16 GIB, 120 IOPS, 25 MB/s
The default storage configuration for SQL virtual machines drives for data and log storage.	s has changed, now including OLTP optimization and separate	TempDb storage				
		The tempDb system database is a temporary user objects and interna			lected to the instance of SQL	. Server. It is used to store
	ization: Transactional processing GiB, 5000 IOPS, 200 MB/s	Shared drive space * ①	TempDb drive locati	ion * 🛈		
SQL Log: 1024	GIB, 5000 IOPS, 200 MB/s Ise local SSD drive	Use local SSD drive 🗸	D:\tempDb	_		
Change configu						
SQL Server License		A The desired performance mig	ht not he reached due to	the maximum virtual mach	ine dirk performance can The	relacted VM rite
SQL Server License		(Standard_B2ms) only support	ts up to 22.5 disk max thr	oughput in MBps (currently	/ 50 in MBps).	and the second second
Review + create < Previous Next :	Tags >	Ok Discard				

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.



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Click on Tags and leave default values (or change it according to your needs)

Click on **Review + create** to validate the settings



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

Search (Ctrl+/)		Delete 🚫 Cancel 🏦 Redeploy 🖒 Refres	h		
		Denter Co Cancer [[] neospioy Co Heres	n.		
Overview inputs	0	We'd love your feedbacki →			
Jutputs		Deployment is in progress			
Template		Deployment name: CreateVm-microsoftsqlserv Subscription: Pay-As-You-Go Resource group: vm-bi4-demo	rer.sql2019-ws2019-s., Start time: 1/6/2021, 3:21:23 PM Correlation ID: 5527a445-02bd-4720-bb10-0e5	59a41a823	
	^	Deployment details (Download)			
	^	Deployment details (Download) Resource	Туре	Status	Operation deta
	^		Type Microsoft.Compute/virtualMachines	Status Created	
	^	Resource			Operation deta
	^	Resource	Microsoft.Compute/virtualMachines	Created	Operation deta Operation deta
		Resource vm-bi4-demo vm-bi4-demo5	Microsoft.Compute/virtualMachines Microsoft.Network/networkInterfaces	Created	Operation det Operation det Operation det
		Resource vm-bi4-demo vm-bi4-demo5 vm-bi4-demo_DataDisk_1	Microsoft.Compute/virtualMachines Microsoft.Network/inetworkInterfaces Microsoft.Compute/disks	Created Created OK	Operation deta Operation deta Operation deta Operation deta
		Resource wm-bi4-demo wm-bi4-demo wm-bi4-demo,DataDisk_1 wm-bi4-demo,DataDisk_0	Microsoft.Computer/virtuatMachines Microsoft.Network/networkInterfaces Microsoft.Computer/disks Microsoft.Computer/disks	Created Created OK OK	Operation det Operation det Operation det Operation det Operation det Operation det

With this step we have created a VM.

0	Your deployment is complete
P	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						
P Search (Ctrl+/) ≪	💋 Connect ▷ Start 🦿 Res	start 🔲 Stop 🞉 Capture 📋 Delete 💍 Refresh 🔋 Open in mobile				
Overview						
Activity log	Resource group (change) : vm-bi4	I-demo	Operating system	: Windows (Windows Server 2019 Datacenter)		
Access control (IAM)	Status : Runnin	Ig	Size	: Standard B2ms (2 vcpus, 8 GiB memory)		
	Location : West E	urope	Public IP address	ic IP address : 20.71.160.76		
 Tags 	Subscription (change) : Pay-As	-You-Go	Virtual network/sub	net : vm-bi4-demo-vnet/default		
Diagnose and solve problems Subscription ID : 0edf89a6-co		a6-c40e-475e-99db-92b04d214475	DNS name	: Configure		
Settings	Tags (change) : Click h	ere to add tags				
Networking						
Ø Connect	Properties Monitoring C	apabilities (7) Recommendations Tutorials				
B Disks	Virtual machine		🧟 Networking			
📮 Size	Computer name	vm-bi4-demo	Public IP addr	ress 20.71.160.76		
Security	Operating system	Windows (Windows Server 2019 Datacenter)	Public IP addr	ress (IPv6) -		
 Advisor recommendations 	Publisher	microsoftsqlserver	Private IP add	dress 10.0.1.4		
	Offer	sql2019-ws2019	Private IP add	dress (IPv6) -		
Extensions	Plan	standard	Virtual netwo	rk/subnet vm-bi4-demo-vnet/default		
Continuous delivery	VM generation	V1	DNS name	Configure		

Enter **DNS name label** (hint: name can be same as virtual machine name).

Click on Save	
4 Alerts	
Monitoring	bi4-vm-demo
	DNS name label (optional) ①
🔒 Locks	0
Properties	0
Properties	Idle timeout (minutes) ①
💼 Configuration	51.137.60.70
Settings	IP address (i)

2.2.2 Setup RDP connection

Click on **Connect** button on header toolbar



and select RDP and Download RDP File.

RDP	SSH	BASTION
Conn	ect wit	h RDP
To con RDP fil		our virtual machine via RDP, select an IP address,
IP add	ress *	
DNS	name (vr	n-bi4-demo.westeurope.cloudapp.azure.com)
Port nu	umber *	
3389		
Do	wnload i	RDP File

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

This PC > Downloads		~	ū		ownloads
Name	Date modified	Туре		Size	
💀 vm-bi4-demo.rdp	06/01/2021 16:04	Remote Desktop Connection	ı	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		ٽ ~	
Name	Date modified	Туре	Size
w-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**.



Click OK

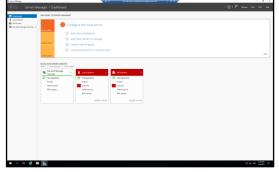
This window will pop-up. Check **Don't ask me again for connect to this computer**.

Nemote Desktop Connection	×
The identity of the remote computer cannot be verified. I you want to connect anyway?	Do
The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.	
Certificate name	
Name in the certificate from the remote computer: vm-bi4-demo	
Certificate errors	
The following errors were encountered while validating the remote computer's certificate:	
The certificate is not from a trusted certifying authority.	
Do you want to connect despite these certificate errors?	
Don't ask me again for connections to this computer	
Vew certificate No	

and click Yes to connect.

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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 Set security configuration

If Server Manager is not open, enter **Server Manager** in Windows search to start Server Manager. Select row **Local Server** and click on the **IE Enhanced Security Configuration**.

€∋• Server M	1anager • Local Sei	ver		
Dashboard	PROPERTIES For vm-bi4-demo			
Local Server	Computer name Workgroup	vm-bil-demo WORKGROUP	Last installed updates Windows Update	Today at 2:28 PM Install updates automatically using Microsoft Update
File and Storage Services D			Last checked for updates	Today at 2:27 PM
	Windows Defender Firewall	Private: On	Windows Defender Antivirus	Real-Time Protection: On
	Remote management	Enabled	Feedback & Diagnostics	Settings
	Remote Desktop	Enabled	Enhanced Security Configuration	On
	NIC Teaming	Disabled	Time zone	(UTC) Coordinated Universal Time
	Ethernet 2	IPv4 address assigned by DHCP, IPv6 enabled	Product ID	00430-00000-00000-AA331 (activated)

New pop-up window will open. Set both options to Off and confirm the selection by clicking OK.

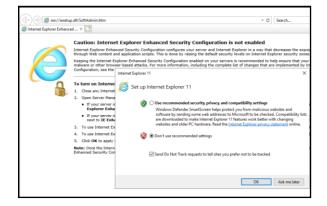


Run Internet explorer from Taskbar



and pop-up window will open:

- Select Don't use recommended Settings
- Keep option "Send Do Not track" checked.
- Confirm **OK**.



3.3 Install Azure CLI

3.3.1 About CLI

The **Azure command-line interface** (**Azure CLI**) is a set of commands used to create and manage **Azure** resources. The **Azure CLI** is available across **Azure** services and is designed to get you working quickly with **Azure**, with an emphasis on automation.

3.3.2 Install CLI

Go to <u>https://docs.microsoft.com/en-us/cli/azure/install-azure-cli-windows?view=azure-cli-latest&tabs=azure-cli</u> and install Azure CLI.

Install or up	date
	sed for installing or updating the Azure CLI on Windows. You irrent versions before using the MSI installer because the MSI ersion.
Microsoft Installer (MSI)	Microsoft Installer (MSI) with Command
When the installer asks box.	if it can make changes to your computer, click the "Yes"
Azure CLI cu	rrent version
Download and install t	he current release of the Azure CLI.
Current release of the	Nzure CU



3.4 Download auxiliary installation files



3.4.1 Run Loopback script

Here is the link to auxiliary installation files: <u>https://www.bi4dynamics.com/dl/azure/VM.zip</u>. There are 2 files:

- 1. Enable PolyBase script: SQL script that will enable PolyBase feature.
- 2. **Loopback script**: this script will enable access to SQL server on VM from resource outside of VM. We will be using Docker to interface with SQL server.

🗐 enable_polybase	12/1/2020 12:40 PM	Microsoft SQL Ser	1 KB
Ioopback	11/30/2020 11:34	Registration Entries	1 KB

Run (double click) loopback.reg file. It will finish immediately.

3.5 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:

Apps System Configuration SQL Server 2019 Configuration Manager	Sql Server Configuration Manager File Action View Help		
 Control Panel Settings Change proxy settings Choose your input device Choose your output device Choose your output device Download and install braille View configured update policies Use automatic proxy configuration 	SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) SQL Server Network Configuration (32bit) SQL Server Network Configuration SQL Server Network Configuration SQL Server Network Configuration SQL Server Network Configuration SQL Server Network Configuration	Name SQL Server Integration Services 15.0 SQL Full-text Filter Daemon Launcher (MSSQLSERVER) SQL Server Launchpad (MSSQLSERVER) SQL Server Launchpad (MSSQLSERVER) SQL Server Analysis Services (MSSQLSERVER) SQL Server Agent (MSSQLSERVER)	State Running Running Stopped Stopped Stopped Running
© SQL Server 2019 Configuration Manager コートーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーーー			

Change Log-on Account for SQL Server Analysis Services

to VM admin account:

SQL Server Analysis Services (MSSQLSERVER) Properties	?	×
Log On Service Advanced		
Log on as:		
C Built-in account:		
This account:		
Account Name: .\vm-admin-user	Browse	
Password:		
Confirm password:		
Service status: Running		
Start Stop Pause	Restart	
OK Cancel Apply	Help	p

And **Start** the service.

Set start mode to Automatic:

E.	General		
	Binary Path		*C:\Program Files\Microsoft SQL Se
	Error Contro	1	1
	Erit Code		1077
	Host Name		vm-bi4-demo
	Name		SQL Server Analysis Services (MSSC
	Process ID		0
	SQL Service 1	ine.	Analysis Server
	Start Mode	ype	Automatic
	State		Stopped
Sta	rt Mode		

3.6 Install PolyBase

3.6.1 Install PolyBase SQL feature

Every VM machine with SQL server has folder containing SQL installation files

C:\SQLServerFull\

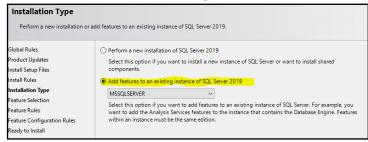
		Name	Date modified	Туре
🖈 Quick access		Packages	11/11/2020 6:12 AM	File folder
Desktop	*			
Downloads	*	PerfLogs	10/13/2020 9:40 PM	File folder
- Downloads	7	Program Files	1/6/2021 2:26 PM	File folder
🔮 Documents	1	Program Files (x86)	1/6/2021 4:13 PM	File folder
E Pictures	1	SQLIaaSExtension	1/6/2021 2:27 PM	File folder
This PC		SQLServerFull	11/11/2020 6:22 AM	File folder
		Users	1/6/2021 3:33 PM	File folder
3D Objects		Windows	1/6/2021 3:39 PM	File folder
E Desktop		WindowsAzure	1/6/2021 2:24 PM	File folder

Run C:\SQLServerFull\setup.exe

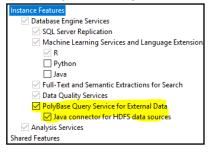
Select Installation and New SQL Server stand-alone installation or add features to existing installation.

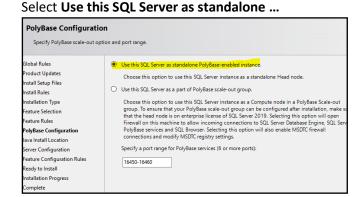
📙 🛃 📃 🖛	Manage	SQLServerFull
File Home Share View	Application Tools	
📸 SQL Server Installation Center		- 🗆 X
Planning Installation Maintenance Tools Resources	Launch a features to Install SQ Launch a	Server stand-alone installation or add features to an existing installation wizard to install SQL Server 2019 in a non-clustered environment or to add o an existing SQL Server 2019 instance. L Server Reporting Services download page that provides a link to install SQL Server Reporting Services, et connection is required to install SSRs.
Advanced Options	Install SQ Launch a Studio, SC provider,	L Server Management Tools download page that provides a link to install SQL Server Management 2L Server rommand-line utilities (SQLCMD and BCP), SQL Server PowerShell SQL Server Profiler and Database Tuning Advisor. An internet connection is to install these tools.

Select Add features to an existing instance



Select PolyBase Query Service and Java connector







Keep the option Install open JRE selected.



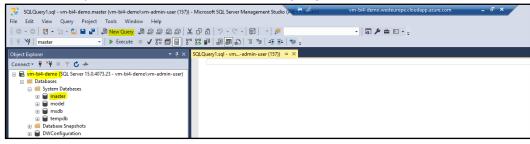
Follow the next steps to finish the installation and **Install** newly selected features. It will take 4 minutes.

Complete		
Your SQL Server 2019	installation completed successfully with product updates.	
Global Rules Product Updates	Information about the Setup operation or possible ne	ext steps:
nstall Setup Files	Feature	Status
nstall Rules	Java connector for HDFS data sources	Succeeded
nstall Kules nstallation Type	PolyBase Query Service for External Data	Succeeded

Restart SQL server database engine from the Configuration Manager.

3.6.2 Enable PolyBase

Connect to VM and **open SSMS** (SQL Server Management Studio), **connect** to SQL server instance, select **master** database in System Databases and create **New query**:



Open enable_polybase.sql file provided with by BI4Dynamics in master database connection

🗄 🕆 😽 master 🗸 🕹 🗇 🔛 🖇	· 양 맨 표 타 = 현 = 한 · · · · · · · · · · · · · · · · · ·		
Object Explorer ● I × Connect ♥ 7 ♥ ▼ Ø ★ ■ I whethermo (SCL Server 15.0.4073.23 - vm-bi4-demo/vm-admin-use) ■ I babases ■ I whethermo Databases ■ I whethermo Databases ■ I whethermo Databases ■ I whethermo Databases	<pre>embic.polybacsq.=wdmin-user(152)) = X [Cu(Cucy)sql=vma-admin-user(157)) ElECC sq.comfigure 'how advanced option', '1'; ECC sq.comfigure 'holybase embiled', 1; ECC sq.comfigure 'holybase embiled', 7; RECONFIGNE; ECC sq.comfigure 'holoop connectivity', 7; RECONFIGNE;</pre>		
0 F modb 0 Empdb 0 Empdb 0 Empdb 0 Database Sapathots 0 DWDlagnotts 0 DWDlagnotts 0 DWDlagnotts 0 Security 0 Security 0 Security	↓ ⊇ ■ ∓ Downloads Fire Home Share View		
G	← → ← ↑ ↓ → This PC → Downloads → Quick access → Dextop ↓ Downloads → Downloads → Coursents	Type Windows Installer Package Registration Entries Microsoft SQL Server Query File	Size 49,132 KB 1 KB 1 KB

and Execute query on master database.

B Messages	
Configuration option 'show advanced options' changed from 0 to 1. Run the RECONFIGURE statement to ins	tall.
Configuration option 'polybase enabled' changed from 0 to 1. Run the RECONFIGURE statement to install.	
Configuration option 'hadoop connectivity' changed from 0 to 7. Run the RECONFIGURE statement to insta	11.

After enabling PolyBase, close the window and **Restart** VM from Taskbar:



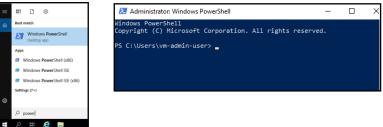
You have successfully installed and enabled PolyBase.

3.7 Install Azure modules

In this step we will add Azure modules that are needed for Azure authentication and registration. These are official Microsoft modules available on the internet.

Process requires installation of **NuGet** provider, that will manage the packages. Download and installation is done by **PowerShell**.

By typing windows search **power** open **PowerShell**, a desktop application:



Run command (copy exact text): Install-Module –Name Az –AllowClobber This message will display. Confirm "Y"

Process will need few minutes to complete...





During 2-minute installation, this window will be displayed:

Windows PowerShell Copyright (C) Microsoft Corporation. All rights reserved. Installing package 'Az' Installing dependent package 'Az.ApplicationInsights' [ooocococo Installing package 'Az.ApplicationInsights'

Run command (copy exact text): Install-Module "AzureAD"

Confirm "Y" to install the package and close PowerShell.

You have successfully installed Azure VM with the required resources. This ends Azure SQL Virtual Machine installation.



4 Create other Azure resources

We will create:

- 1. Blob Storage in Storage Account with Storage Containers to store data in Azure Data Lake
- 2. Container Instance, named Docker Container, a self-contained Azure resource that acts like virtual machine

Container name is used as Storage Container and Docker Container, this to someone new, may be confusing.

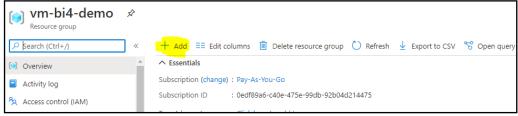
4.1 Create Blob Storage

Blob storage will keep BC and application data.

4.1.1 Create storage account



Go to Azure portal, go to Resource group that belongs to Virtual Machine, click Add



Enter Storage Account into search window, click on Create



Add Storage account name, select the same Location as VM and change Repolication to LRS.

Home > vm-bi4-demo > New > Storage account >					
Create storage accoun	t				
5					
Basics Networking Data protec	tion Advanced	Tags	Review + c	reate	
Azure Storage is a Microsoft-managed se redundant. Azure Storage includes Azure Tables. The cost of your storage account Learn more about Azure storage account	Blobs (objects), Azur depends on the usag	re Data Lak	e Storage Ger	n2, Azure Files, .	
Project details					
Select the subscription to manage deploy your resources.	ed resources and co	osts. Use res	ource groups	like folders to	organize and manage all
Subscription *	Pay-As-You-Go				~
Resource group *	vm-bi4-demo				
Nesource group	Create new				
Instance details The default deployment model is Resour using the classic deployment model inste				features. You m	ay choose to deploy
Storage account name * 🕡	vmbi4demostora	age			~
Location *	(Europe) West Eu	urope			\sim
Performance ()	● Standard () Premium	1		
Account kind 🕕	StorageV2 (gene	eral purpose	e v2)		~
Replication ①	Locally-redunda	nt storage i	LRS)		~
Review + create	< Previous	Next : Ne	tworking >		

Keep other tab option default.

Click Review and Create. (Finish in 20- 30 seconds)

Go to Storage Account, select Access Key, select Show keys

Copy the content of the key

Home > vmbi4demostorage	
vmbi4demostorage Storage account	e Access keys
₽ Search (Ctrl+/) «	Use access keys to authenticate your applications when making requests to this Azure storage account. Store you keys so that you can maintain connections using one key while regenerating the other.
🗳 Tags 🏠	When you regenerate your access keys, you must update any Azure resources and applications that access this st
Diagnose and solve problems	when you regenerate your access keys, you must update any Azure resources and applications that access this st
Access Control (IAM)	Storage account name vmbi4demostorage
💕 Data transfer	Vinbi4demostorage
🗲 Events	Hide keys
🔛 Storage Explorer (preview)	key1 🗘
Settings	Key 4T+eDbv9U7G7OSWd785S0P86V++VBdglaPeTTHHvun1lGgN4HaRY9mwElFYMrTagHcn8I7UlQ==
Access keys	Connection string
Geo-replication	DefaultEndpointsProtocol=https;AccountName=vmbi4demostorage;AccountKey=4T+eDbv9U7G7OSWd785S0P

Save Storage Key to notepad file.

4.1.2 Create (storage) container

Go to Storage Account **Overview** and select **Containers**

Home >	
vmbi4demostorage	*
✓ Search (Ctrl+/) «	🕍 Open in Explorer \rightarrow Move \checkmark 🖒 Refresh \mid 📋 Delete \mid 😳 Feedback
Overview Activity log	Classic alerts in Azure Monitor is announced to retire in 2021, it is recommended that you upgrade your classic alert rules to retain alerting functionality
🗳 Tags	↑ Essentials
Diagnose and solve problems	Resource group (change) : vm-bi4-demo
Access Control (IAM)	Status : Primary: Available
💕 Data transfer	Location : West Europe
🗲 Events	Subscription (change) : Pay-As-You-Go
Storage Explorer (preview)	Subscription ID : 0edf89a6-c40e-475e-99db-92b04d214475 Tags (change) : Click here to add tags
Settings	
📍 Access keys	Containers Scalable costs offer the storage for Superior SMP and NES file shares
🌻 Geo-replication	unstructured data
S cors	Learn more Learn more Learn more

Click on + Container and enter new container Name

Home > vmbi4demostorage	e ∣Containers ≉			New container	×
Storage account Search (Ctrl+/) Overview	Container A Change a	ccess level 🏾 🏷 Restore containers	~ C	Name * vmbi4democontainer Public access level ①	~
Activity log	Name	Last modified	Pub	Private (no anonymous access)	\sim
 Tags Diagnose and solve problems 	You don't have any containers	yet. Click '+ Container' to get started		✓ Advanced	

Click Create.

You have successfully created Storage Account with one container.

4.2 Create Container Instance

With these settings we will create a docker container (a light virtual machine) based on BI4Dynamics image that is used for running table export from BC to Blob storage. Docker will run at scheduled time and automatically shut down after finishing the export.



Go to Azure service, click Container instance

Azure services		
+ 📮 🖙 📾 🔮 🚍 📦 📍	$\diamond \rightarrow$	
Create a Virtual Analysis Azure SQL Container Storage Resource Subscription: resource machines Services <u>instances</u> accounts groups	Azure Active More services Directory	
L click + New to create a new container instance		
Home > Container instances *		
BHQYNAAMCS + Newy ③ Manage view ◇ ◇ Refresh 🞍 Export to CSV 😚 Open query 🖗 Assign tags ♡ Feedback		
Filter for any field Subscription == 2 of 3 selected Resource group == all × Location == all × * v Add filter	Home > Container instances >	
Select:	Create container in	istance
• Subscription: Pay-As-You-Go	Azure Container Instances (ACI) all	lows you to quickly and easily run containers on Azure without managing servers or having to
Resource group: <i>vm-bi4-demo</i>	learn new tools. ACI offers per-sec Learn more about Azure Container	ond billing to minimize the cost of running containers on the cloud.
• Container name (any name): vm-bi4-demo-container	Project details Select the subscription to manage your resources.	deployed resources and costs. Use resource groups like folders to organize and manage all
Region (same as VM)	Subscription * ①	Pay-As-You-Go
	Resource group * ①	(New) vm-bi4-demo
Important: following settings	Container details	
MUST be exactly like below:	Container name * 🕕	vm-bi4-demo-container
Image source:	Region * 🕕	(Europe) West Europe V
Other registry	Availability zones (Preview) 🕕	None
Image type: Public	SKU	Standard V
 Image: bi4dynamicsregistry.azurecr.io/bc2lake 	Image source * ①	Azure Container Registry
• OS Type:		Other registry Please be aware that Docker Hub has recently introduced a pull rate limit on Docker
Windows		Prease be aware that bocker hub has recently introduced a pull rate limit on Docker images. When specifying an image from the Docker Hub registry, this may impact the creation of your container instance. <u>Learn more</u> rd
Size change to:	Run with Azure Spot discount ①	

- Size change to: • 2 or 4 vcpu (more parallelism), 4GiB memory
- Confirm change OK •

Click Next: Networking Click Next: Advanced

Container details		
Container name * 🕕	vm-bi4-demo-container 🗸	
Region * 🕕	(Europe) West Europe 🗸 🗸	
Availability zones (Preview) ①	None	
SKU	Standard V	
Image source * ①	Quickstart images Azure Container Registry Other registry	
	Please be aware that Docker Hub has recently introduced a pull rate limit on Docker images. When specifying an image from the Docker Hub registry, this may impact the creation of your container instance. <u>Learn more</u> of	
Run with Azure Spot discount 🕕		
Image type * 🕕	Public Private	
Image * 🛈	biddynamicsregistry.azurecr.io/bc2lake f If not specified, Docker Hub will be used for the container registry and the latest version of the image will be pulled.	
OS type *	 Linux Unindows This selection must match the OS of the image chosen above. 	
Size * C	4 vcpus, 4 GiB memory, 0 gpus Change size	
Review + create < Pr	evious Next : Networking >	

Under Advanced tab set the following

- Restart policy: Never
- Environment variables keys must be exact:
 - StorageAccountName enter the name of storage account that is used for Blob Storage
 - BlobAccessKey of the same storage account
 - o ContainerName of the storage account

Home > Container instances >			
Create container insta	nce		
Basics Networking Advanced	Tags Review + create		
	lago nenen create		
Configure additional container propertie	es and variables.		
Restart policy 🕕	Never		\sim
Environment variables			
Mark as secure	Кеу	Value	
No	StorageAccountName	vmbi4demostorageaccount	Û
No	BlobAccessKey	ae65dSsiaxFYyFVp8F04Gr1dCLgc	Û
No	ContainerName	vmbi4democontainer	Î
No V]
Command override (i)	[]		
common overhale (y		: ["/bin/bash", "-c", "echo hello; sleep i	100000"]

These Keys and Values give Docker instance access to Blob Storage.

Click Review and Create

Click Create

Home > Container instances >			
Create containe	r instance		
Validation passed			
Validation passed			
Basics Networking	Advanced Tags	Review + create	
Basics			
Subscription		s-You-Go	
Resource group		4-demo	
Region		lurope	
Container name	vm-bi Public	i4-demo-container	
Image type Image		: namics/bc2lake	
OS type	Windo		
Memory (Gill)	a a	DHS	
Number of CPU cores	1		
GPU type (Proview)	None		
GPU count	0		
Networking			
Networking type	Public		
Ports	80 (TC	(P)	
Advanced			
Restart policy	Nover		
Environment variables	3		
Command override	0		
Tags			
(none)			
Create	< Previous	Next > Download a template for automation	

You have successfully created Docker instance

5 Result

5.1 Information needed for BI4Dynamics application installation

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

5.1.1 Information about Azure SQL Virtual Machine

Description	Value
VM Admin Account	vm-admin-user
VM Admin Account Password	6!dJ2yS34MbbQiPHs@rd

5.1.2 Information about Azure Storage and Container instance

Description	Value
Subscription	Pay-As-You-Go
Virtual Machine Resource Group	vm-bi4-demo
Azure Storage Account Name	vmbi4demostorage
Container Name	vmbi4democontainer
Storage Account Blob Key	4T+eDbv9U7G7Wd785S0P86V++VBdqIaPeTTHHvun1lGgN4I==
Container instance name	vm-bi4-demo-container

5.2 Next step – BI4Dynamics applications installation

Here is document to install BI4Dynamics BC: <u>https://www.bi4dynamics.com/documents/</u>